MAR 8 '46
117

THE Refrigeration Industry

INSTALLATION
MAINTENANCE
MERCHANDISING

AIR CONDITIONING
MACHINERY

MARCH, 1946

IN THIS ISSUE:

"Something for Nothing" Pays Off . . . Refriger-Aging
Cooling Your "Shots" . . . The Thermobank Simplified
Drier than Dry . . . Soda Fountain Maintenance (III)

Improved PACKLESS VALVES

"Simplicity" Packless Valves

...have round hand wheels for easy hand grip

...have flat steel springs for positive spring action

...have raised body seat that controls travel of stem

...have uniformly level connections for ease in installation

...have unusually low overall height, reducing required installation space

...have multiple diaphragms, a construction outlasting any other possible combination

Free

Write today or phone any branch office for our new, fully illustrated Refrigeration catalog.

Look Ahead with

Weatherhead

THE WEATHERHEAD COMPANY, CLEVELAND 8, OHIO
Plants: Cleveland, Columbia City, Ind., Los Angeles, Canada—St. Thomas, Ontario

This Weatherhead product is an outstanding example of the engineering "know-how" with which we have endowed all our refrigeration parts. The "Simplicity" Packless Valve was designed-in-use to insure economical long life and trouble-free operation. This product is available in a wide variety of sizes, both flared and solder types.

BRANCH OFFICES: NEW YORK • PHILADELPHIA • DETROIT • CHICAGO • ST. LOUIS • LOS ANGELES

Balanced Performance

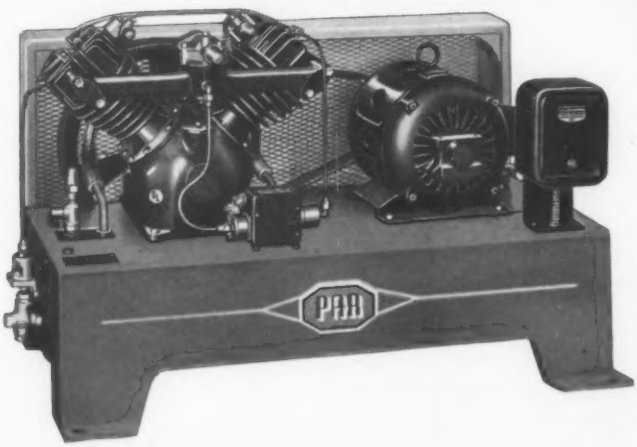
Compare **PAR** from Every Angle

CONSTRUCTION
PERFORMANCE
SERVICE

You'll quickly see WHY that... by Comparison, they're buying **PAR**

PAR BY *Lynch*

COMPARE Par from every angle—*Construction* . . . streamlined, rugged, with many outstanding features, makes servicing a simple easy task—*Performance* . . . quiet, slow speed, assures extra years of dependable efficient operation—*Service* . . . Par jobbers located in important trading centers from coast to coast offer complete Par service. See your Par Jobber today or write for Par Catalog R-97 and *compare!*



PAR—Condensing Unit Line sold exclusively through Franchised Refrigeration Supply Jobbers!

. . . By Comparison — You'll Buy PAR

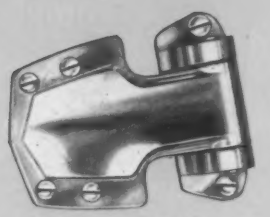
Lynch Manufacturing Corporation

TOLEDO 1, OHIO, U. S. A.

America's Quality Line of COMMERCIAL REFRIGERATOR HARDWARE

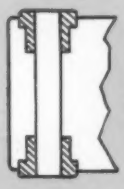
When it TRIPS, it GRIPS

Here's the strongest, most positive automatic trip lock ever devised! That undershot jaw really takes a bulldog grip. Exclusive patented construction permits finger-tip closing . . . assures a maximum air-tight, heat-tight seal. Forged brass lever, extruded brass bolt, stainless steel pin — with pressure-cast zinc alloy casing, all handsomely finished in bright chrome. Adjustable strikes provide wide range of offsets.

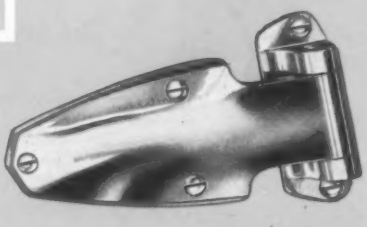


HINGES . . . for *Lifetime Service*

Grand Rapids Brass Company designs its hinges for extra stamina, as well as good looks. Hinges shown are made with exclusive Oilite bronze bushings and stainless steel pins. This combination gives a wear-proof, sag-proof bearing surface . . . self-lubricated for life.



Showing exclusive hinge bearing construction. Shaded portion is self-lubricating Oilite bronze.



POSTWAR is here to stay . . . at Grand Rapids Brass Company. You can plan right now to standardize . . . for months ahead . . . on these and other products of this organization. You'll get top peacetime quality and engineering. You can depend on prompt, satisfactory deliveries. Our wartime activity has given us new techniques . . . new methods, new engineering "know-how" . . . all of which are reflected in today's products. Items shown on this page, and many others, are available now, in various sizes. We'll be happy to provide full information and quotations. Drop us a line today!

Manufacturing a full line of hardware for commercial refrigerators

Grand Rapids Brass Company

Makers of Dependable Refrigerator Hardware for over 40 Years

Grand Rapids 1, Michigan

THE Refrigeration INDUSTRY

VOLUME 3, No. 3 MARCH, 1946

THIS MAGAZINE has no official affiliation with ANY group, society or association.

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ABC

THE COVER . . . "Cold" has replaced "old" in helping to boost champagne production for California's huge Roma Wine Co. Shown here is the traditional bottle-fermenting champagne department, with neck-freezing apparatus in right front center. See story on page 40.

CONTENTS

USEFUL LITERATURE 54
BTU'S 27
OFFERING "SOMETHING FOR NOTHING" PAYS OFF 29
THE THERMOBANK SIMPLIFIED 30
COOLING YOUR "SHOTS" 33
DRIER THAN DRY 34
ABOUT PEOPLE 37
"LIQUID" INSTALLATION AND SERVICE (Part 3) 38
REFRIGER-AGING 40
REFRIGERATION INDUSTRY NEWS 43
HERE'S HOW 56
THE PRACTICAL REFRIGERATION ENGINEERING MANUAL . . 65
CONTRACTOR NEWS—ACTIVITIES—PLANS 71
OVER THE COUNTER 74
NEW PRODUCTS 76
THE MARKET PLACE 80
INDEX OF ADVERTISERS 80

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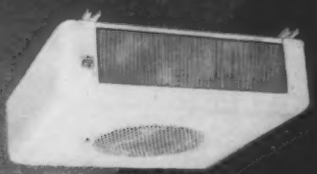
developed by Western heat exchange experts

d-h EQUIPMENT PERFORMS BETTER ANYWHERE...

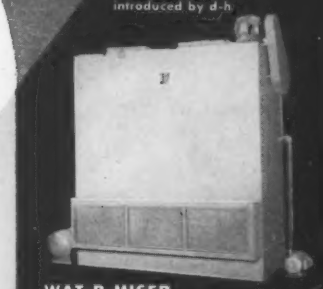
Now Western industry contributes advanced knowledge and experience to the specialized science of heat exchange. d-h equipment... designed, engineered and manufactured by our own organization at Los Angeles... is setting new standards of performance throughout the country and in many foreign lands as well.

The complete line includes air conditioning equipment, refrigeration equipment, airplane exhaust heaters, air and liquid coolers, heaters, coils... each with outstanding qualities that invite comparison. They represent more than a generation of Western heat exchange development. Into them go thorough knowledge of heat exchange principles, expert designing for proper proportion and balance, and experience in manufacturing quality products with the finest factory facilities.

Our engineers are ready to help you solve your heat exchange problem. Perhaps the answer is ready and waiting... perhaps only minor adaptation of standardized equipment is necessary. Write us about your needs.



SPASAVER
Horizontal type air cooler first introduced by d-h



WAT-R-MISER
Evaporative liquid cooler that eliminates nine-tenths of ordinary operating costs

HEXHEAT
(Co-current type) Airplane exhaust heater of greatly superior efficiency

STRATA-FLO
Revolutionary type water cooler of unequalled efficiency

LOS ANGELES d-h SINCE 1910

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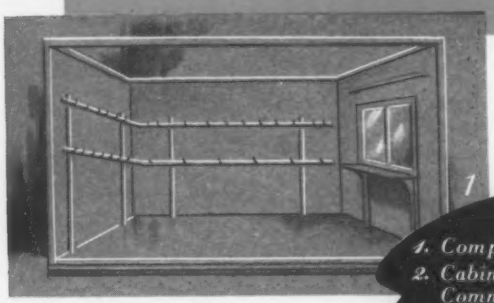
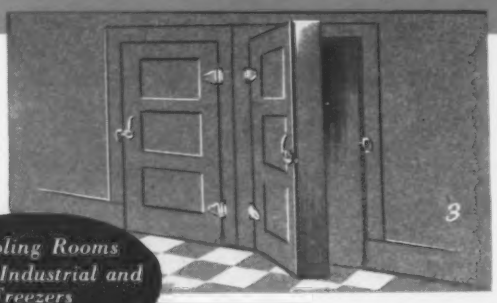
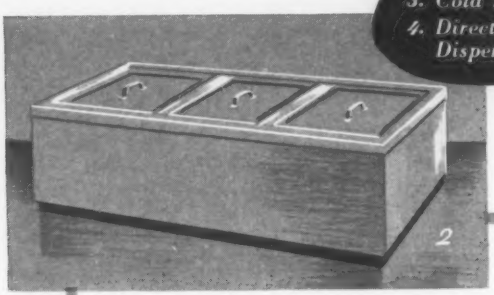
THE FIRST AND ONLY FACTORY OF ITS KIND IN THE WEST WITH COMPLETE FACILITIES FOR ENGINEERING, DESIGNING, MANUFACTURING, HEAT EXCHANGE EQUIPMENT

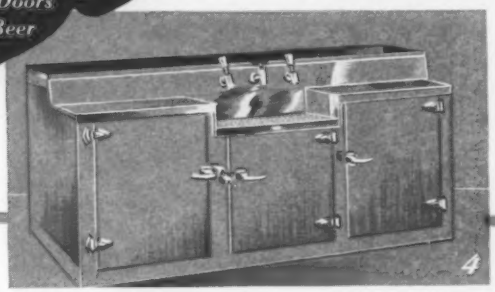
FOUR *Naturals* FOR THE INDUSTRY'S *hit parade*





1. *Complete Cooling Rooms*
2. *Cabinets and Industrial and Commercial Freezers*
3. *Cold Storage Doors*
4. *Direct Draw Beer Dispensers*





Refrigeration contractors, service organizations and fixture and equipment dealers can look forward to a steady rise in profits and prestige as soon as the new Albert H. Bromann Jr. plant begins turning out these products in volume. For the cold storage doors and direct draw beer dispensers illustrated here incorporate design features and superior workmanship that will sell them on sight, and the cooling rooms and freezer cabinets that will be tailor-made for your customers in our modern factory will add substantially to your good reputation.

Of particular interest to you because it *protects* your profits is the Albert H. Bromann Jr. policy of selling only through recognized, established refrigeration and dealer outlets. No product of this organization will be sold direct to users at any time under any circumstances.

Only the shortage of essential raw materials is holding up volume production. Designs have been perfected, specifications drawn up, modern machinery installed in the new plant. As soon as needed lumber, hardware, insulation and other materials are available in quantity, the assembly lines will swing into action. In the meantime, we suggest you write us, if you have not already done so, in order that your name may be placed on file to receive new literature when it is ready for distribution.

SERVING THE REFRIGERATION INDUSTRY

ALBERT H. BROMANN JR.

SCHILLER PARK, ILLINOIS (CHICAGO SUBURB)

SPORLAN SOLENOID VALVES *give*

PEAK PERFORMANCE on All Installations

The new Sporlan Type 12 Solenoid Valve equipped with Dual Voltage Coil.

The new Sporlan Type 72 Solenoid Valve.

The Sporlan Type A-160 Solenoid Pilot Control; used in place of large capacity Solenoid Valves for positive shut off of liquid lines.

Sporlan Solenoid Valves are noted for their simplicity, ruggedness, accessibility of parts, and, like all Sporlan products, can be installed with confidence.

Sporlan Manufactures

SOLENOID VALVES
SOLENOID PILOT CONTROLS
MODULATING PILOT CONTROLS
REFRIGERANT DISTRIBUTORS
and the only
THERMOSTATIC EXPANSION VALVES
with SELECTIVE CHARGES

Always specify Sporlan
when ordering from your wholesaler and get Peak Performance on all installations.

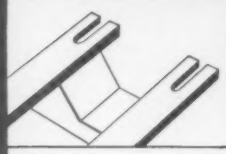
SPORLAN VALVES

SPORLAN VALVE COMPANY

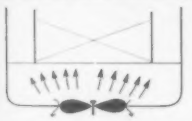
3723 COMMONWEALTH AVENUE — ST. LOUIS 17, MISSOURI

Keep Your Profits

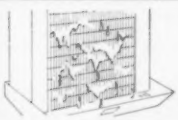
call backs are costly...
Bush *dependability*
insures your profits



SLOTTED HANGERS — *Permit greater ease of installation. Slip under lag bolts at one end — giving support while other end is fastened.*



DEEP PLENUM CHAMBER — *An outstanding BUSH feature engineered for best distribution of moving air thru core of cooling unit*



DEFROSTS QUICKLY — *Uses ordinary tap water. Water enters spray tank, flows down coils, quickly removes frost—flows down drain.*

MOTOR SUPPORT BRACKET — *Widely accepted as the best engineered support in the industry. Light — yet strong and vibration proof.*

Water Defrost Unit Cooler

BUSH

- **DEPENDABILITY** to withstand hard service . . . operation under adverse conditions.
- **DEPENDABILITY** that translates itself into fewer call-backs for adjustments . . , fewer service calls for repairs.
- **DEPENDABILITY** like this accounts for the nation-wide preference for BUSH . . . particularly in difficult and unusual applications.
- **BUSH** is setting the pace for better, sturdier heat transfer products that *insure* your profits through their built-in dependability.

Specify BUSH for uninterrupted, trouble-free service

HEAT TRANSFER PRODUCTS

Sold by Leading Refrigeration Equipment Wholesalers The Country Over

HARTFORD, CONN. 410 LEXINGTON AVENUE, NEW YORK ★ 549 W WASHINGTON BOULEVARD, CHICAGO
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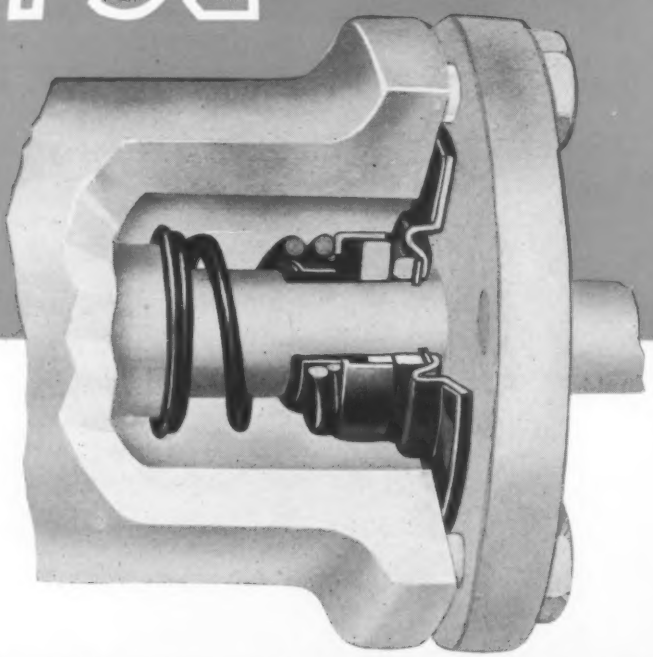
Rotary Seal

REPLACEMENT UNITS FOR REFRIGERATOR COMPRESSORS ARE AVAILABLE FOR

OVER 752 MODELS OF REFRIGERATOR ASSEMBLIES!



ROTARY SEAL has pioneered in the manufacture of mechanical shaft seals. The basic design of ROTARY SEAL UNITS provides flexibility in the rotating seal through a durable diaphragm-acting neoprene ring. Besides being first choice of service organizations, ROTARY SEALS are also used as original equipment by many compressor manufacturers. Available at your jobber.

ROTARY SEAL COMPANY

2020 North Larrabee St. Chicago 14, Ill.

Canadian Office: 902 Victoria Avenue, Westmount, Montreal

THANK YOU KINDLY, SIR!

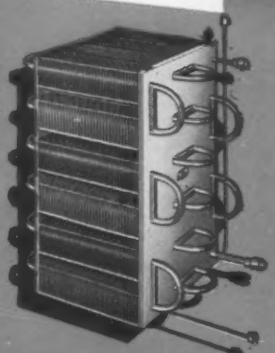
We at PEERLESS are delighted with the warm reception given our products upon reconversion from war production to manufacture of our peacetime products. We take pardonable pride in the evidence that PEERLESS products have unquestioned prestige in the refrigeration field. And we feel a responsibility to maintain that prestige by making PEERLESS products better than ever. The refinements developed during wartime are not the end of the story!

Research at PEERLESS *continues* in order to bring to YOU the products which make YOUR installations SUPERIOR.

SOLD THROUGH LEADING REFRIGERATION SUPPLY JOBBERS

ICE CUBE MAKER

ICE CUBE MAKER

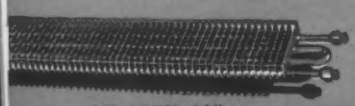


FIN COIL

FLASH COOLER

EXPANSION VALVE

CAPACITY BOOSTER



OFF-CENTER COIL

PEERLESS OF AMERICA, INC.

Executive and General Sales Offices

333 NORTH MICHIGAN AVENUE, CHICAGO 1, ILLINOIS, U. S. A.

A Little Masterpiece of Precision Cold Control

ALCO EVAPOTROL

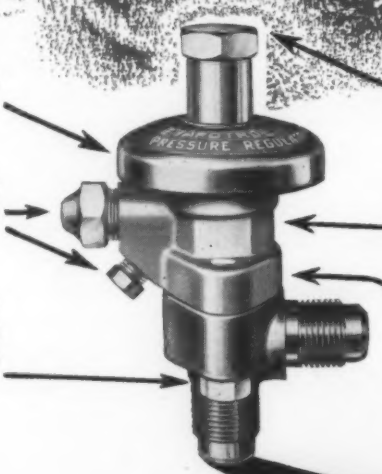
"Vest Pocket"

EVAPORATOR PRESSURE REGULATOR

Simple, compact, lightweight — the Alco Evapotrol is expertly engineered for smaller installations:

- to prevent freezing in beverage and water coolers
- to take advantage of maximum evaporator capacity
- for accurate control of a single evaporator in a multiple system—by maintaining constant evaporator pressure, independent of fluctuations in suction pressure or load.

Bulletin 760 will bring you detailed data on Evapotrols with flare or solder connections; for larger regulators request Bulletin 179.



Atomic-hydrogen welded power assembly.

Built-in manual shut-off valve for gauge connection.

Internal mechanism easily removed for cleaning by removing two cap screws.

Completely moisture-proof pressure adjustment.

Minimum number of moving parts.

Tight seating, oil-resistant composition seat.

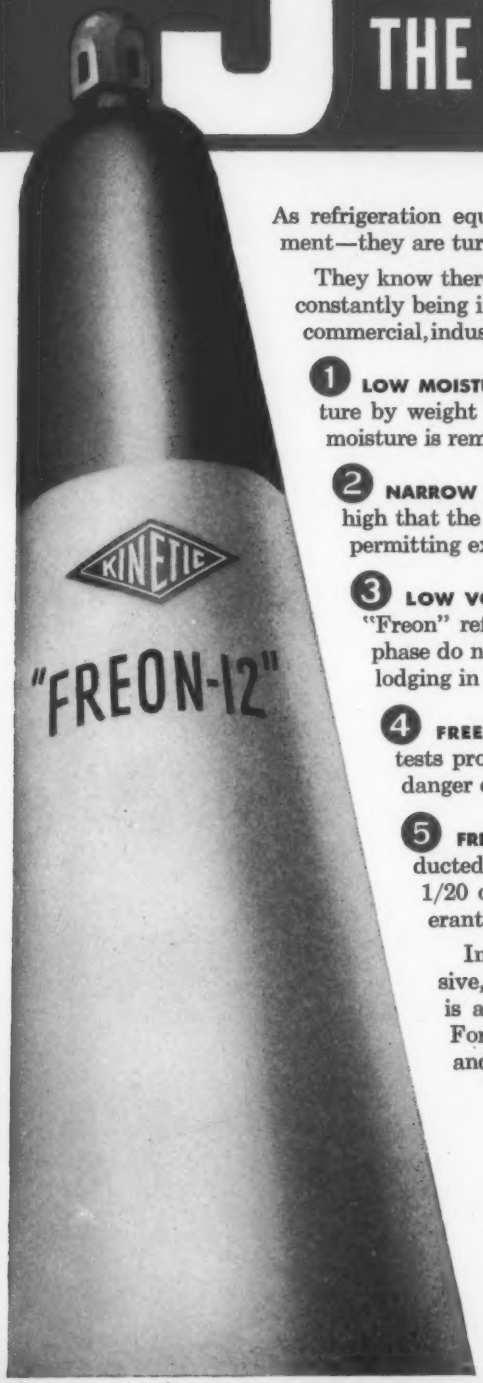
ALCO

ALCO VALVE CO.

843 KINGSLAND AVE. • ST. LOUIS 5, MO.

Designers and Manufacturers of Thermostatic Expansion Valves; Pressure Regulating Valves; Solenoid Valves; Float Valves; Float Switches.

5 REASONS WHY "FREON" IS THE IDEAL REFRIGERANT



As refrigeration equipment manufacturers design better, more efficient equipment—they are turning more and more to "Freon" safe refrigerants.

They know there is a "Freon" for every need and that these refrigerants are constantly being improved. Here are five reasons why they are ideal for modern commercial, industrial and residential air conditioning and refrigeration systems:

1. **LOW MOISTURE CONTENT**—Tests show there are less than 25 parts moisture by weight in a million parts of liquid "Freon." Almost every trace of moisture is removed . . . eliminating possibility of freezing in the system.

2. **NARROW BOILING POINT RANGE**—The degree of "Freon" purity is so high that the boiling point range is confined within the limits of ½° C. . . . permitting extremely long periods of faultless operation of equipment.

3. **LOW VOLUME OF NON-CONDENSABLE GASES**—Specifications for "Freon" refrigerants are such that non-condensable gases in the vapor phase do not exceed 2 per cent . . . eliminating risk of the useless gases lodging in condensers.

4. **FREEDOM FROM ACIDS**—Laboratory and manufacturing control tests prove there are no acids in "Freon" refrigerants . . . removing danger of corroding the equipment.

5. **FREEDOM FROM IMPURITIES**—Continuous residual tests are conducted to assure users that high boiling impurities total less than 1/20 of 1 per cent . . . guaranteeing the purity of "Freon" refrigerants at all times.

In addition, "Freon" safe refrigerants are non-toxic, non-explosive, non-flammable, odorless and colorless. A variety of types is available to meet an extremely wide range of requirements. For complete information, write: Kinetic Chemicals, Inc., Tenth and Market Streets, Wilmington 98, Delaware.

KINETIC

FREON

REG. U. S. PAT. OFF.

safe refrigerants

"FREON" IS KINETIC'S REGISTERED TRADE MARK FOR ITS FLUORINE REFRIGERANTS AND PROPELLENTS

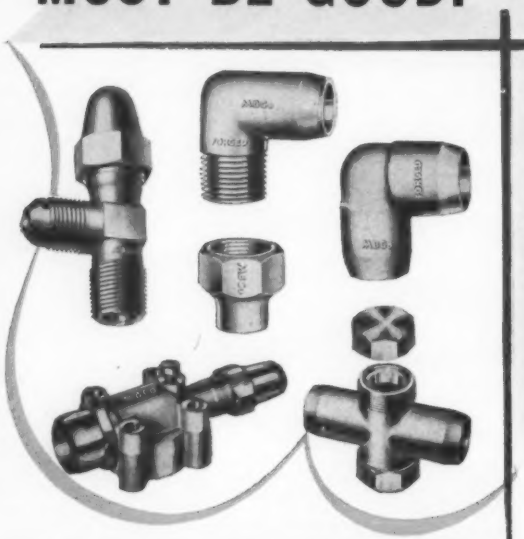
CURTIS Uses MUELLER BRASS CO. Valves and Fittings in the Assembly and Construction of CURTIS PACKAGED AIR CONDITIONING UNITS

Curtis 3 and 5-ton Packaged Air-Conditioning Unit.

Curtis 7½ to 15-ton Central-Type Air-Conditioner.

CURTIS REFRIGERATING MACHINE
Division of Curtis Manufacturing Company
1900 Kienlen Ave. • St. Louis, Missouri

THESE PRODUCTS MUST BE GOOD!



BUILT-IN QUALITY • TIME-TESTED PERFORMANCE

Mueller Brass Co. Valves, Fittings and accessories are sturdily and dependably built. They have a well-earned reputation for built-in quality and time-tested performance.

The Mueller Brass Co. line of refrigeration products are designed and manufactured specifically for mechanical refrigeration work. THEY ARE USED BY ALL OF THE LARGEST MANUFACTURERS THROUGHOUT THE UNITED STATES.

Curtis Units Provide Dependable, Economical Air Conditioning Service

Curtis Packaged Air-Conditioning Units provide a complete air-conditioning system in one compact, attractively designed unit that cools, dehumidifies, circulates and filters the air. Designed for long life, low-operating cost and quiet, dependable operation, like all Curtis products, these units embody Curtis' 91 years of successful manufacturing experience.

Building only the best has long been the policy of Curtis Manufacturing Company since its establishment in 1854.

MUELLER BRASS CO. PORT HURON, MICHIGAN

Built to be INSTALLED *and then* FORGOTTEN

No matter which of the controls in the complete White-Rodgers line you use, their many exclusive features are designed to relieve you of any future attention. Years of satisfactory service have proved the dependability of White-Rodgers Hydraulic-Action controls.

WHITE-RODGERS ELECTRIC CO.

ST. LOUIS 6, MISSOURI

Controls for Refrigeration • Heating • Air Conditioning

The Ansul Research Staff REPORTS ON . . . . .

WAX IN OIL-REFRIGERANT MIXTURES

WAX CAUSES FROZEN VALVES *too!*

These photographs show the results of practical machine tests in which 10% oil was circulated with the refrigerant. Valve temperature was approximately −25 degrees Fahrenheit. Every effort was made to exclude moisture. Within a few hours wax separated throughout the body of the expansion valve and the forepart of the expansion coil adhering firmly to the metal.

*

Ansul jobbers are ready and equipped to render an intelligent, co-operative service to refrigeration engineers and maintenance men on problems which arise from time-to-time in the operation of refrigerating systems.

FOR EXAMPLE:

Samples of ice machine oils, submitted by users of Ansul Refrigerants to Ansul Jobbers, are tested by Ansul laboratories without charge by the Ansul Standard Wax-Oil Separation Method. This approved method, developed and standardized especially for use in connection with oils used in refrigerating systems, provides an accurate determination of the amount of wax which separates from an oil at low temperatures.

LIQUID Sulfur Dioxide ANSUL*

LIQUID Methyl Chloride ANSUL*

*REG. U.S. PAT. OFF.

A wax deposit, about 1/8 inch thick, formed on the plate carrying the ball-valve enclosure and almost completely clogged the outlet of the expansion valve.

REMEDIES

To eliminate wax trouble in expansion valves and coils:

*

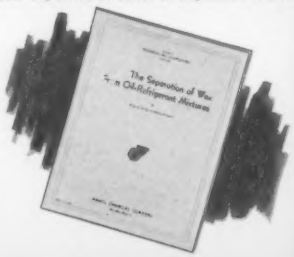
1. Use an oil which separates little or no wax from its mixture with the refrigerant at the operating temperature of the valve.
2. Install an oil trap to cut down the amount of oil (and consequent wax) circulating with the refrigerant.

SEND FOR THIS BULLETIN

An informative reprint, "THE SEPARATION OF WAX FROM OIL-REFRIGERANT MIXTURES," will be sent on request. No obligation. Just address . . .

Wax deposited on the ball-valve closure plate.

Wax deposited in outlet of Expansion Valve.



ANSUL CHEMICAL COMPANY

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Curtis Condensing Units for all refrigeration applications are available in a wide range of types and sizes from ¼ to 30 H.P., air and water cooled.

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Every piece of Curtis equipment is backed by 92 years of successful manufacturing experience. Aided by advanced engineering that includes the famous Curtis "Centro-Ring" positive pressure oiling system, Curtis units have a traditional reputation for exceptionally long life, economical operation, and trouble-free service under the heaviest demands.

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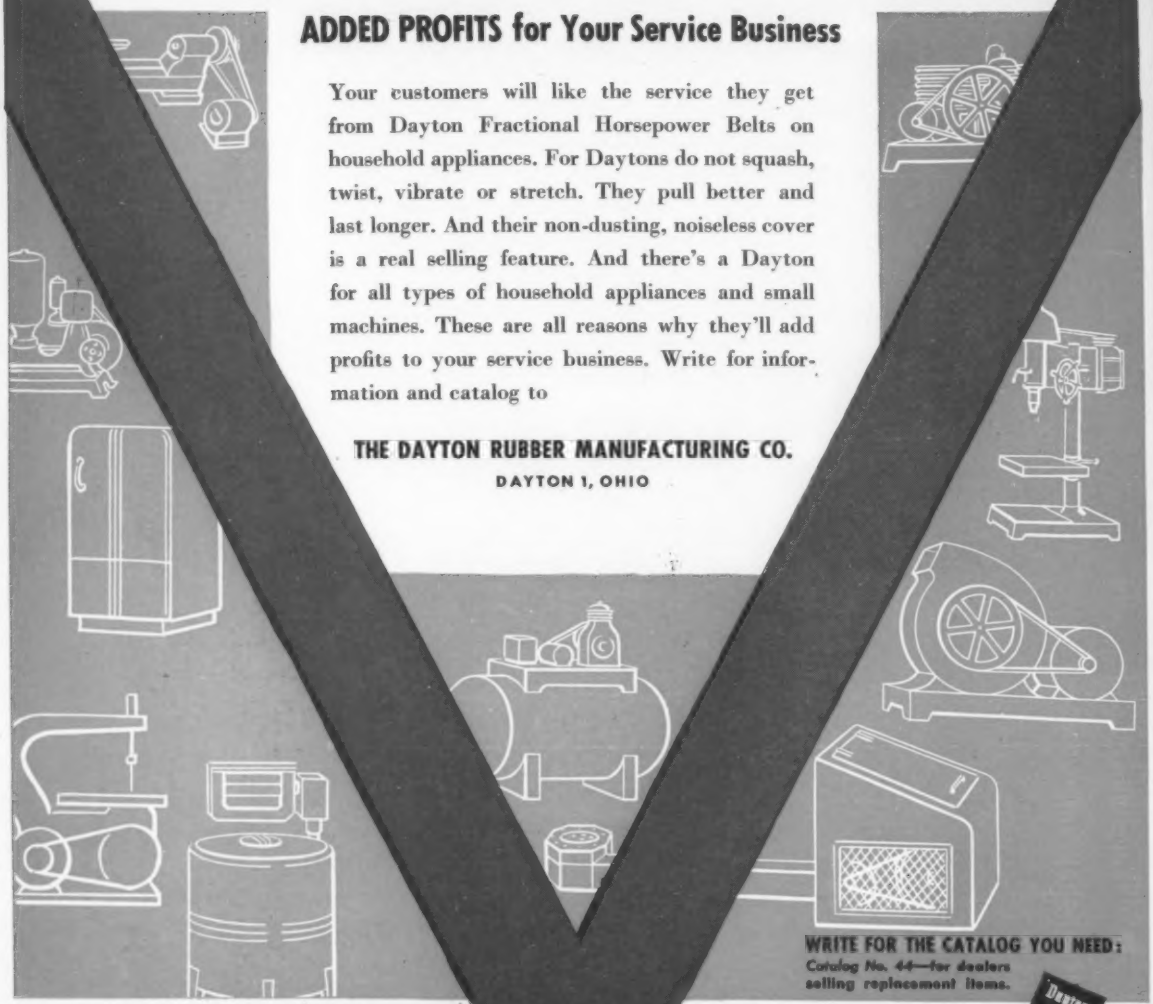

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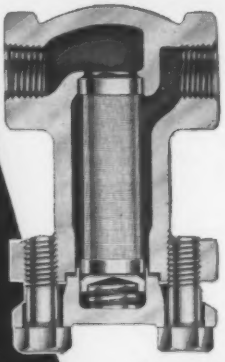

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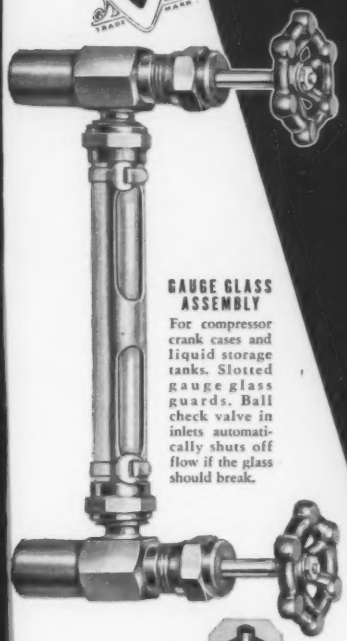
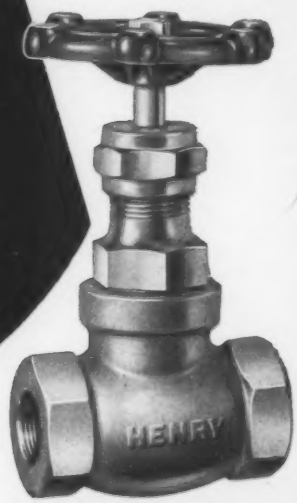
Large capacity with a spring tensioned self-centering and removable screen. Choice of 50 or 100 mesh. Sizes ¼" to 2" inclusive.

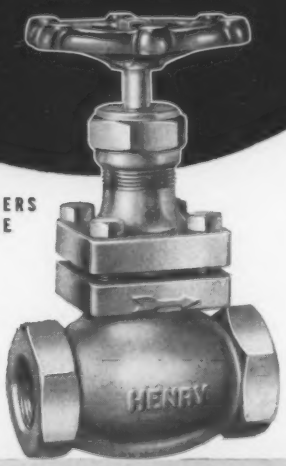


GAUGE GLASS ASSEMBLY
For compressor crank cases and liquid storage tanks. Slotted gauge glass guards. Ball check valve in inlets automatically shuts off flow if the glass should break.



Screwed Bonnet Type Valve

LINE SHUT-OFF VALVES
They are more compact because the bodies are made from die cast permanent mold iron of close grain structure. Two piece stem construction. Floating disc has soft metal alloy insert which rotates on stem. Sizes 1¼" to 2" inclusive.



Bolted Bonnet Type Valve

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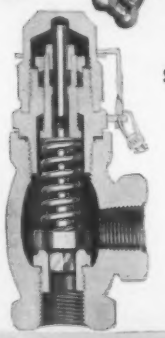

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Accurate release and positive reseating action. Soft alloy metal seat and extended stem permit emergency reseating without removing valve from line. Sizes ⅜" to 2" inclusive.

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When Selecting Wagner Repulsion-Start Induction Motors

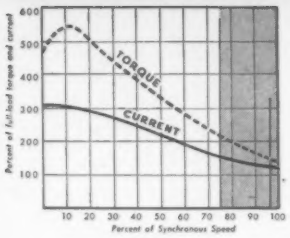


Figure 1

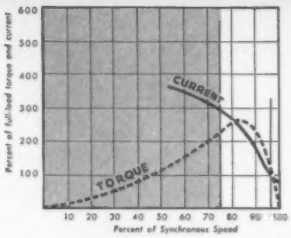


Figure 2

As these graphs show, Wagner repulsion-start induction motors combine the most desirable operating characteristics of the repulsion motor and the induction motor. Figure 1 shows the speed-torque-current characteristics of a repulsion motor while Figure 2 is for an induction motor. Note that when the unshaded portions of these two graphs are combined, the most desirable characteristics of both are retained in the new graph, Figure 3, which shows the performance curves of a Wagner repulsion-start induction motor.

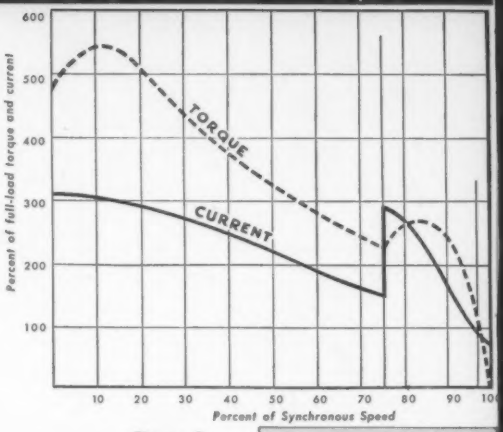


Figure 3

These benefits to you, as a user of Wagner repulsion-start induction motors, result from this happy combination of the best features of two types of motors:

Desirable Features of Repulsion Motors

1. High starting-torque enables them to start high-inertia loads and accelerate them smoothly.
2. Lowest starting-current of any type of single-phase motor, therefore least likely to cause light flicker.

plus

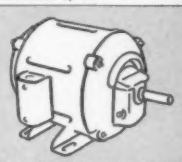
Desirable Features of Induction Motors

3. Fairly constant and high operating speed at all operating loads.
4. Fairly flat efficiency curve over wide operating range.

Wagner type RA motors are truly "general-application" motors. They are particularly suitable for driving machines with high-inertia, machines involving excessive friction in starting, and, in general, loads requiring motors capable of exerting high starting-torque with relatively low starting-current.

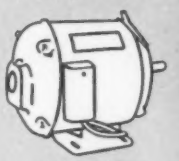
Wagner type RA motors embody the latest improvements in single-phase motor design. This means that the user of RA motors gets the best motors for the job with long life and dependability built into every part.

For a complete description of Wagner Repulsion-Start Induction Motors, as well as all other types of Wagner single-phase, polyphase, and direct-current motors, ask for Bulletin MU-185. Address your request to Wagner Electric Corporation, 6442 Plymouth Ave., St. Louis 14, Mo.

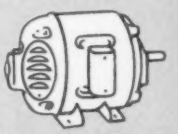


REPULSION-START INDUCTION

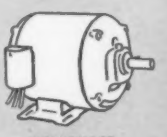
CAPACITOR-START INDUCTION



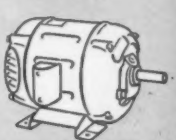
SPLIT-PHASE



DIRECT-CURRENT



POLYPHASE



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Wagner motor parts are available at 350 Wagner-owned and contract repair shops.

Brunner Refrigeration helps you serve better

IF HEAD OR DISCHARGE PRESSURE IS TOO HIGH

The Brunner Refrigeration Service Manual gives the following possible causes and remedies:

PROBABLE CAUSE	TEST and REMEDY
Overcharge:	Purge.
Air in system:	Purge.
Insufficient ventilation:	Relocate unit with proper air circulation over condenser.
Dust in condenser:	Clean condenser.
Dirty or clogged water passages in condenser or water valve:	Clean tubes and open water valve and clean.
Water not turned on:	Turn on water.
Operating with higher suction pressure than unit rating; i. e. operating low temperature unit on medium temperature service:	Change motor pulley and operate compressor at slower speed.
Evaporative condenser water or fan pump stopped, or make up water float stuck shut, or clogged water strainer:	Check motor circuits. Free float and clean strainer. See if fan belts are broken or slipping and replace or adjust.
Evaporative condenser tubes dirty:	Clean tubes.
Cooling tower pump motor stalled or off, clogged water strainer:	Check motor circuit. Clean strainer.
Insufficient evaporative condenser capacity or cooling tower capacity:	May be caused by extremely high atmospheric wet bulb conditions, beyond designed conditions. Increase fan capacity or supplement with additional water cooled, air-cooled, or evaporatively cooled surface.

SERVICE essentials are common to all refrigeration systems. In the Brunner Refrigeration Service Manual, fundamentals, such as the above, are emphasized, so that no matter what minor difficulties there may be in various refrigeration systems, the basic installation and maintenance advice given will still apply. Therefore, make use of your Brunner Manual when trouble-shooting. If you do not have a copy we will be glad to furnish one for only $2.50. Write to

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No. 897 Dura-from Thermostatic Expansion Valve for commercial applications. Compact and easy to install.

No. 673 Thermostatic Expansion Valve. For many years the standard of the refrigeration industry.

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No. 788 Dura-from large capacity Thermostatic Expansion Valve, with No. 790 Distributor, showing the distributor tubes and equalizer connection.

No. 793 Differential Temperature Expansion Valve specially designed for temperatures below minus 30° F.

HOW DOES MOISTURE AFFECT REFRIGERATION VALVE OPERATION?

No. 9 of a Series

The "sticking" expansion valve, so frequently a source of complaint, many times may be the result of moisture in the refrigeration system. Here are some basic facts about expansion valve construction and moisture which will help everyone to understand why the two don't belong in the same system.

For example, the orifice, through which the liquid refrigerant passes in the expansion valve, is, of necessity, a very narrow opening in the shape of a doughnut, and

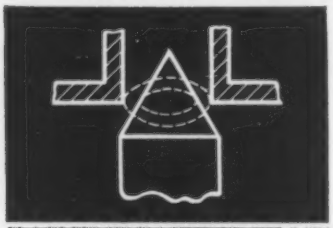

FIG. 1—THE FLOW AREA OF A REFRIGERATION VALVE IS VERY SMALL, AND RING SHAPED.

the needle movement from full closed position to full open position is only a few thousandths of an inch. Expansion valves have to be made this way because the flow of liquid has to be small, and regulation must be extremely fine. So small an opening is easily blocked and a droplet of water when frozen into ice can easily plug it completely. When this happens the refrigerant cannot pass through the valve, and you're in trouble.

The quantity of water commonly referred to as a "grain" is actually a sphere or ball of water, slightly over 3/16"

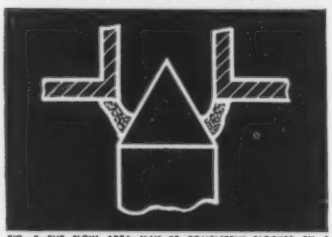

FIG. 2—THE FLOW AREA MAY BE COMPLETELY BLOCKED BY A VERY SMALL AMOUNT OF ICE, WHICH WILL PREVENT FLOW OF REFRIGERANT.

in diameter, and this much water frozen into ice can completely block the orifice of a large expansion valve.

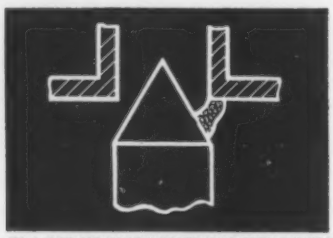

FIG. 3—FLOW AREA PARTIALLY BLOCKED BY ICE WHICH MAY HOLD VALVE OPEN AND CAUSE FLOOD OVER.

Smaller amounts of water in the system can and do collect at the expansion valve orifice and partially obstruct the flow area.

If this occurs when the valve is throttling closely, a starved evaporator will result. If it occurs when the valve is nearly wide open, it can cause the needle to remain too far off the seat, resulting in a flood over.

A large amount of free water in the system can often pass entirely through the orifice of the expansion valve and

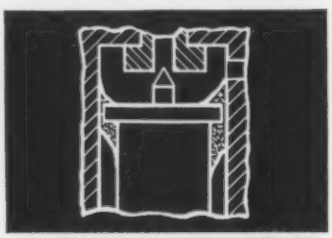

FIG. 4—NEEDLE CARRIER HELD IMMOVABLE BY ICE FORMATION

freeze the needle carrier in a fixed position. This usually results in the valve losing control, and a flood over occurs.

1. Ice at the valve orifice can result in a starved evaporator.

2. Ice at the valve orifice can result in a flood over.

3. Eliminate moisture from the system. A minute quantity can cause trouble.

4. Effective methods of eliminating moisture have been outlined in No's. 1 through 8 of this series of data sheets. If your file of them is not complete, write us for what you need.

Reprints of these articles, size 8½ x 11" and punched to fit a standard 3-ring binder are available on request. Write for your copies.

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SIDE OUTLET DEHYDRATOR

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All Mueller Brass Co. Filters and Driers are provided with the CONE SCREEN OUTLET, a specially designed filtering element that adds immeasurably to the life and efficiency of Driers and Filters.

Almost all crystalline dehydrating agents are subject to a certain amount of abrasion while a dehydrator is in service. Small portions of the dehydrating agent break down into very fine powder and crystals. Unless a well-designed filtering element is incorporated in a dehydrator, these fine crystals and powder have a tendency to clog the outlet filter, resulting in restriction to the flow of refrigerant.

With the MBCO. CONE SCREEN OUTLET, such finer crystals and powder are forced to the base of the cone, leaving the center and tip of the screen open to the free flow of refrigerant.

In addition, the cone screen is filled with pure wool which traps such particles that are sufficiently fine to pass through the screen mesh.

Particular attention has been paid to screen areas in Mueller Brass Co. Filters and Dehydrators, so that each size permits efficient passage to the maximum refrigerant volume that is used in a particular size refrigerant line.

MUELLER BRASS CO.
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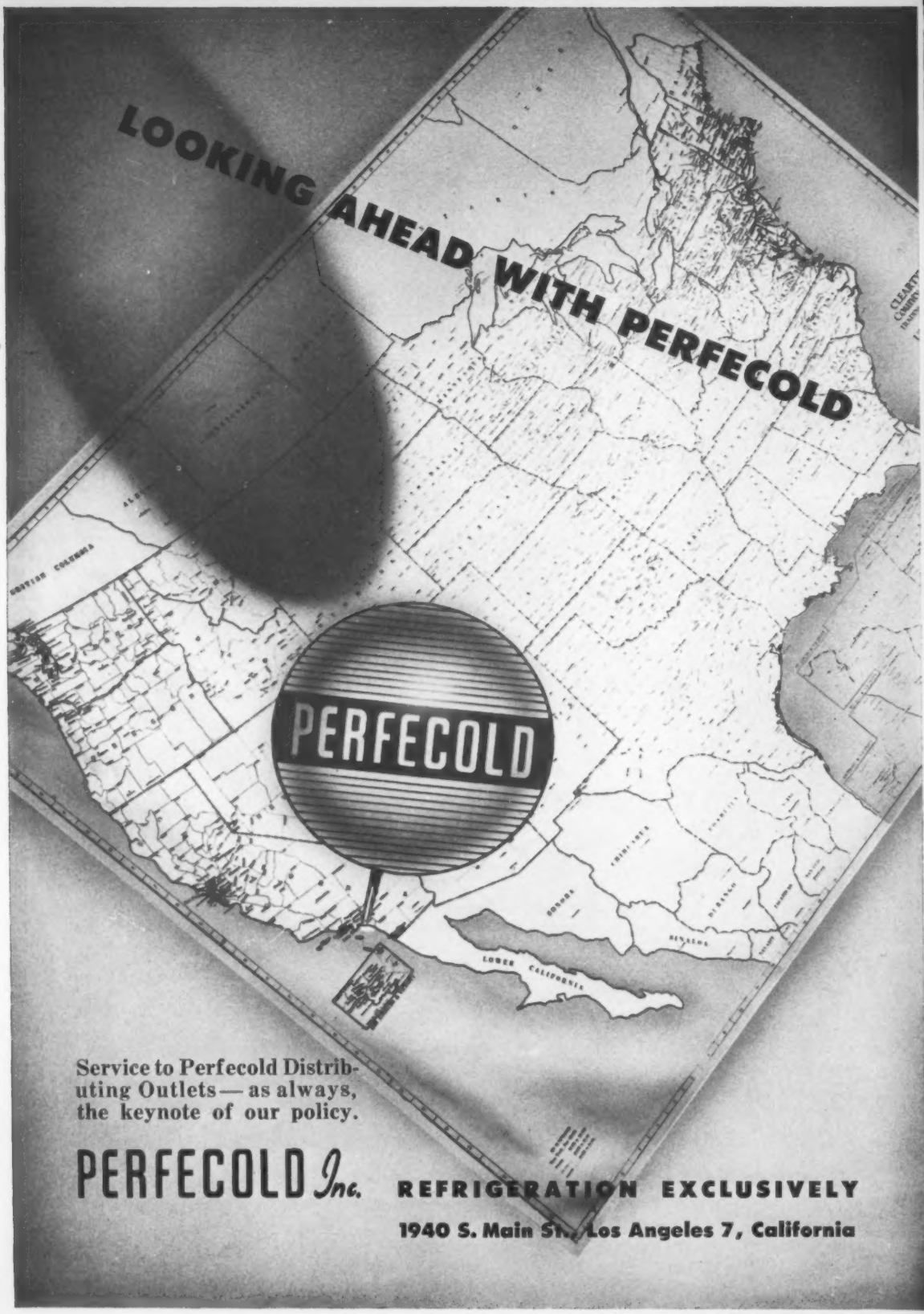

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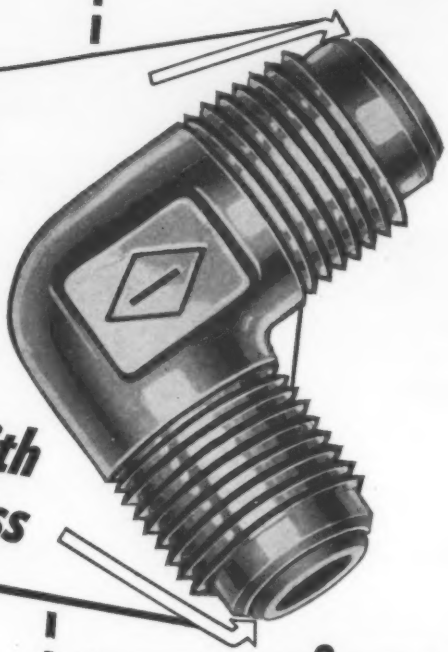
Gives You Joints with Triple-Seal Tightness

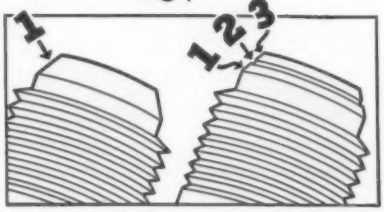


This groove in Imperial Triple-Seal Flare Fittings brings you triple-seal tightness in every joint . . . an extra protection against leakage.

When the flare is drawn against this groove, the copper tubing is extruded into the groove making a tight, self-sealing joint. Here is the joint that remains leakproof even though the face of the seat may be nicked or marred.

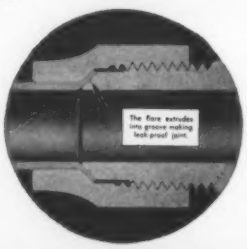
This extra seal of safety is a *plus* feature given to you only by Imperial Triple-Seal Fittings—added to the same excellent S.A.E. refrigeration type flare fitting you have previously used. And remember, Imperial Triple-Seal Fittings cost you no more!

Order Imperial from your Jobber.



(Left) Ordinary flare fittings have only one seal.

(Right) IMPERIAL TRIPLE-SEAL FLARE FITTINGS have three seals to give you new, extra protection against leakage.



THE IMPERIAL BRASS MFG. COMPANY, 536 South Racine Avenue, Chicago 7, Illinois

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TOOLS FOR CUTTING, FLARING, BENDING, COILING, PINCH-OFF AND SWEDGING

BTU's

News • Laws • Trends

Freezers and Excise Taxes. Most home freezers are not subject to the tax imposed on manufacturers' sales of mechanical household type refrigerators under Section 3045 (a) of the Internal Revenue Code, according to a recent interpretation by Deputy Commissioner D. S. Bliss.

Under present Bureau rulings, units whose only functions are to quick-freeze foods and hold foods in frozen storage are not taxable under Section 3045 (a) of the Code, Mr. Bliss said. However, home freezers which have separate food storage space in which above-freezing temperature is maintained are taxable as household-type refrigerators, if the storage space is less than 20 cu. ft.

•

ASRE Spring Meeting. First spring meeting of the American Society of Refrigerating Engineers to be scheduled since 1944 will be held in St. Paul, Minn., some time in June. More definite dates for the meeting and announcement of technical and entertainment programs will be made later. The 1944 spring meeting was held in Pittsburgh.

•

Production Figures. December shipments of domestic mechanical refrigerators increased by 30 per cent over November to an estimated level of 150,000 units, or about half the pre-war rate, John D. Small, Civilian Production Administrator, declared in the agency's monthly report on production. Once current labor-management differences are settled, continuance of this rate of increase would see pre-war production levels of 309,000 monthly reached by June, Mr. Small said.

•

This Survey Is Different. On the basis of a survey completed recently, York Corp. forecasts a potential market for 90,000 farm freezers in 1936, 123,000 in 1947, and 146,000 in 1948. This contrasts to several somewhat more rosy forecast of sales of 300,000 to 400,000 units per year.

•

Locker Plant Figures. Eighth annual locker plant survey, recently completed by the Magazine *Locker Operator,* shows a total of 7,776 plants, main and branch type, in the U. S. and Canada as of December 31, 1945. Of these, 7,420 plants are in the U. S. and 356 in Canada, the survey shows; 6,852 of the U. S. plants are classified as "main" plants, and 568 as "branch" types. Figures for 1945 reflect an increase, in the U. S., of 934 main and 157 branch plants; the Canadian increase for the year was 62 plants.

•

College Cooling Courses. The nation's universities and schools are increasing their educational facilities in the field of refrigeration and air conditioning by at least 25%, and in the frozen foods field by more than 50%, according to a recently completed Rema survey. The survey, covering more than 100 educational institutions, shows that schools which now have courses plan to extend them and that several which did not offer this training plan to add it as soon as qualified instructors can be had. Medical schools of several universities reported extensive experiments with the physiological effect of air conditioning on individual comfort, performance and health.

•

Fun for the Kiddies. A sucker mold for use in refrigerators to make frozen candy concoctions liked by children is being marketed by an Ohio manufacturer. The mold is a tray 6 inches long and 3½ inches wide, with four compartments, made of plastic. Each compartment has a slot to insert a stick before the sucker is frozen. It freezes any kind of beverage, and can be used for making iced tea cubes. Retailing at 98 cents, this might work in as a nice "accessory" item.

OUR NEW ADDRESS

THE REFRIGERATION INDUSTRY is now in a new location:

1240 Ontario Street
Cleveland 13, Ohio

Please make the necessary changes in your mailing records and send all requests for literature, product information, etc. to us at the new address. Your cooperation will enable us to continue to give you the speediest possible service.

Two Tons of Oysters. Some 4,500 pounds of oysters recently were flown in a chartered refrigerated airplane from La Guardia Field, New York City, to Chicago. The bivalves were crated in more than 500 tins weighing 80 pounds each. Officials of the Railway Express Agency's air express division believe this to be the largest oyster shipment ever handled by the agency.

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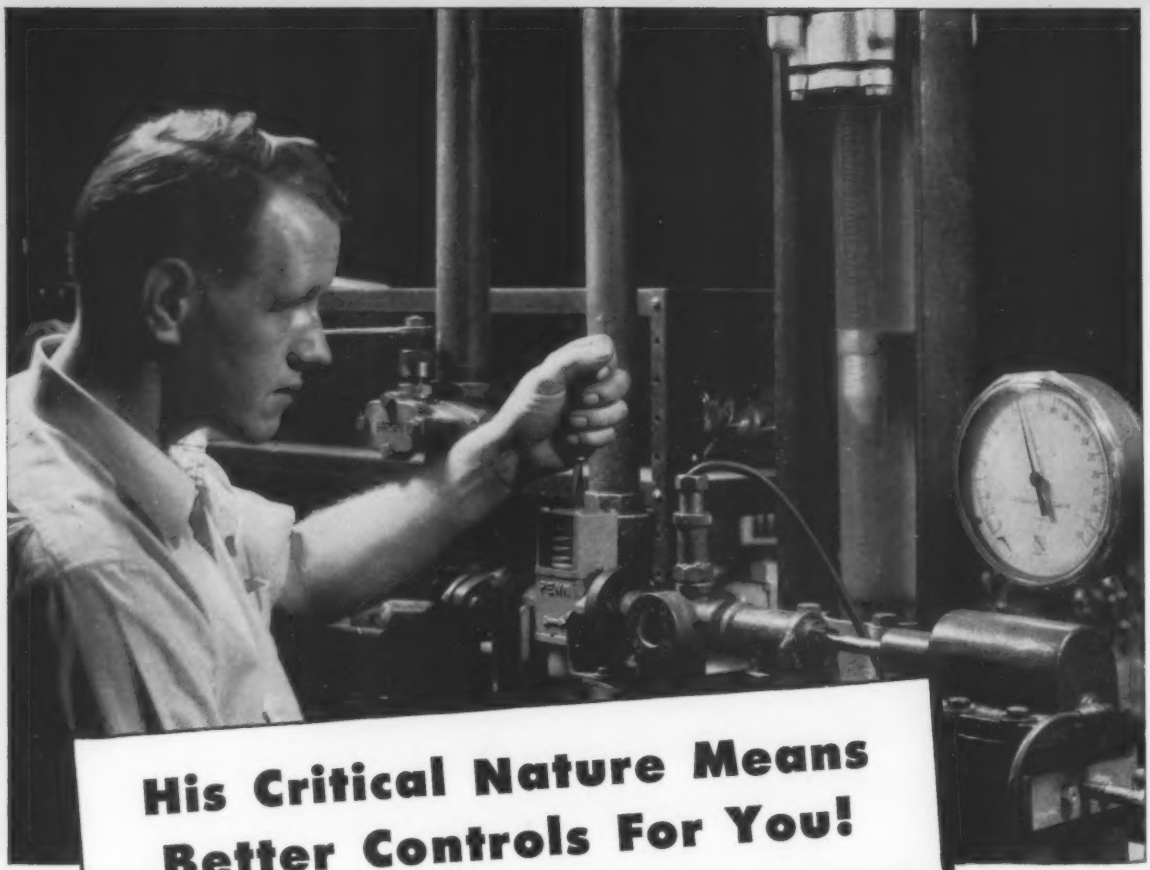
Railroads Add Freezers. Sub-zero food freezing and storage units, as well as regular electric refrigerators, are to be included in the electric galleys for railway diners being designed by Edison Electric Appliance Co. for presentation to approximately 30 national railways.

The low temperature compartments will make possible the handling of frozen pastries, fruits, vegetables, and other provisions.

A pilot car, described as "the first all-electric diner," is now being readied by the Illinois Central Railroad at its Chicago yards. Design of these new galleys is based on the compact galley developed during the war for use on submarines, where space is at a premium and compactness is a requisite.



His Critical Nature Means Better Controls For You!

He's a PENN inspector . . . and he's paid to be super-critical! His job is to reject any product that doesn't adhere to rigid specifications . . . to assure you *the best automatic refrigeration controls that can be built.*

He, like many other expert inspectors and Quality Control Engineers in PENN's modern factory, knows that the operation of the refrigeration equipment you install depends on automatic controls. Consequently, every PENN product must be designed, built and *thoroughly tested* to assure highly satisfactory operation under all normal service conditions. Here, for example, this inspector measures the flow of water through a PENN Water Valve by means of an accurate flow meter. The opening point of the valve is adjusted to meet exactly the customer's specifications.

We have always tried to stay close to the customer and pay strict attention to his needs and desires . . . a policy that has resulted in better refrigeration controls for you. PENN Controls are available for temperatures as low as —150° F., and for pressures as low as 28" vacuum. Ask your jobber—or write direct. There is no obligation. *Penn Electric Switch Co., Goshen, Indiana.* Export Division: 13 E. 40th Street, New York 16, U. S. A. In Canada: Penn Controls, Ltd., Toronto, Ontario.

PENN

AUTOMATIC CONTROLS

FOR HEATING, REFRIGERATION, AIR CONDITIONING, ENGINES, PUMPS AND AIR COMPRESSORS

Offering SOMETHING for NOTHING Pays Off

By Grier Lowry

Ben Galvin, owner and operator of the Appliance Service Co., Kansas City, Mo.

Here's how a Kansas City dealer put this unorthodox theory to work building a profitable dollar volume for his sales and service organization

BUILDING immediate good will and ultimate dollar volume by offering minor appliance repairs free of charge is the cardinal point of the effective sales policy carried out by Ben Galvin's Appliance Service Co., Kansas City, Mo.

Mr. Galvin initiated this forward-looking, long-range promotional plan soon after the war began, at the time when most refrigeration firms, forced to subsist on service alone, were

adopting a policy of making charges for even the most simple adjustments and minor repairs requiring only a few moments of the serviceman's time.

And that this policy of seeming open-handedness has really paid dividends, both in the household and the commercial field, Mr. Galvin will gladly attest.

"A case in point," says the peppery mainspring of this Kansas City concern, "is a housewife who awhile back brought in an ailing heating pad. In a matter of minutes we spliced a wire and had the pad in first-rate condition again. The woman was pleasantly surprised and effusive in her appreciation when she learned there was no charge for the work.

"Yesterday she called at the shop to place a post-dated order for a new refrigerator, and was emphatic in her insistence that I take a deposit. She volunteered that the reason she gave me the order was because for the first time since the start of the war a service organization had made a minor repair for her with no charge."

Servicemen and salesmen who visit homes and business establishments practice the same technique in spreading good will. Refrigeration service engineers who are called to give attention to defective units, and during the repair process uncover some other minor difficulty, are instructed to do the extra work free if it requires no great amount of time or trouble. They follow up their gratis work with a brief, informal sales talk on the policies and products of the Galvin organization. Servicemen thus become consumate salesmen, thanks to the training program offered by Ben Galvin.

Retail sales soon will be under the direction of Mr. Galvin's son, Maynard C., who is due for early release from the armed forces. Part of his job will include furnishing rudimentary refrigeration engineering instruction that will enable the firm's sales representatives to supplement the company's free service activities.

Outside sales representatives will be instructed to say: "Should you

have any minor service problems, Mrs. Jones, taking only a few minutes, I'll be glad to handle them free of charge. I can make simple adjustments, and save you the expense of a trip from a regular refrigeration technician." And after thus gaining

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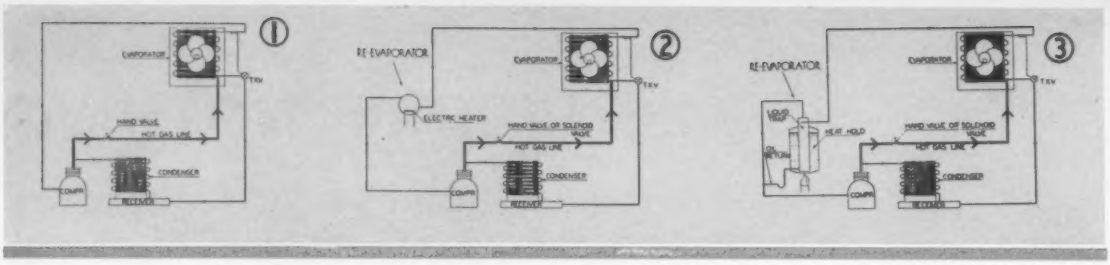
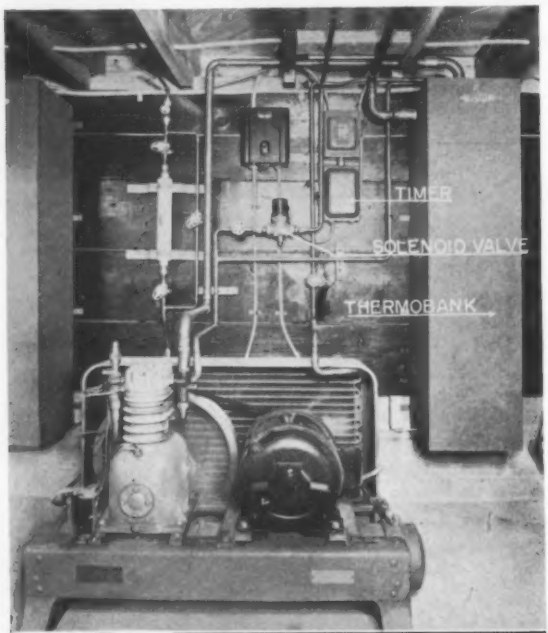


The THERMOBANK *Simplified*



Here, in non-technical language, is a complete description of the basis, operation and uses of the Thermobank system in below-freezing applications

By Otto J. Nussbaum

Chief Engineer Kramer Trenton Co.

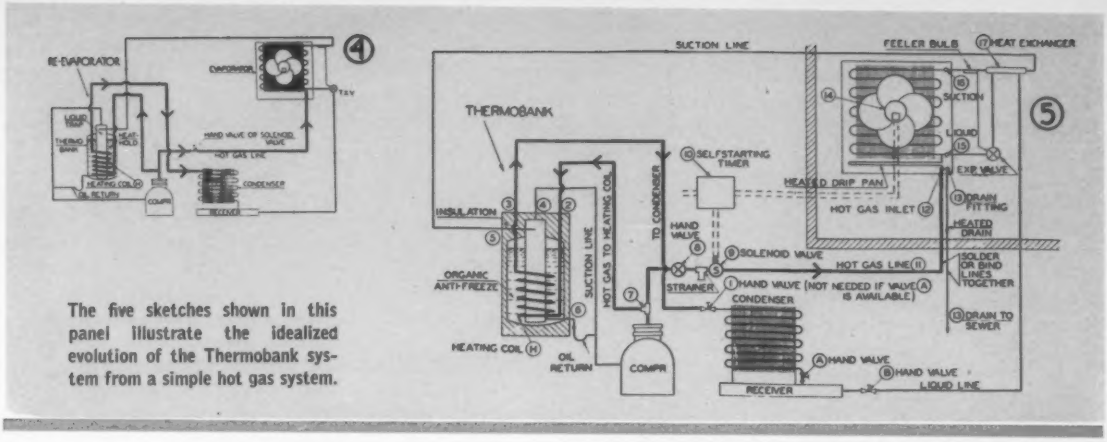
IN any refrigerating system where ice is formed on the évaporator during its operation, the coil must eventually be defrosted if the system is to continue to function. The defrosting operation is, therefore, an essential factor in the design of a refrigerating system. In commercial refrigerators operating above 32° F., the defrost operation has long ago been made automatic. At this temperature level it was a comparatively simple problem. Since the air temperature in such refrigerators is always above 32° F., all that is needed in such a system is to periodically stop the compressor long enough to melt the ice on the coil with the comparatively warm air surrounding it.

In refrigerators operating below 32° F., on the other hand, the defrosting problem is not so simple. It becomes complicated by the fact that the evaporator is always surrounded by air which is too cold to melt the ice on the coil when the compressor is not operating.

With the rapid increase in the use of freezing temperatures for food preservation and distribution, the defrosting of refrigerating systems below 32° F. level has been an important problem, particularly if the food freezing industry is to make full use of the advantages of a unit cooler. The unit cooler is an extremely compact evaporator chiefly because the tubes and fins in the coil are very closely spaced, thus requiring the utmost certainty and regularity in defrosting in order that it may function properly.

The following methods of defrosting unit coolers are

Figure 6 (above, left)—Thermobank and defrosting devices for locker room shown below. Two systems of identical size are used. Figure 7 (below) shows two evaporators, one for each aisle of 500-locker plant.



The five sketches shown in this panel illustrate the idealized evolution of the Thermobank system from a simple hot gas system.

now in common use:

(a) Water spray.
(b) Brine spray.
(c) Electric heaters.
(d) Use of warm outside air.
(e) Simple hot gas defrost.

These methods almost always involve manual operation, a high degree of periodic attention, and very serious limitations.

The "Thermobank" system described below affords completely automatic refrigeration for freezing temperatures, without the use of brine spray, electric heaters, or water spray. It never has to be defrosted because it defrosts itself without the use of external sources of heat. With this system, a zero degree system is just as automatic as a well-designed 40° F. system, in fact, even more so.

The Thermobank system is based on a modification of the "reverse cycle" principle. It is essentially a hot gas defrost system plus a "re-evaporator". Some of the heat contained in the "hot gas" is continually stored in the Thermobank and is used during the defrost operation to re-evaporate the refrigerant liquid condensed in the coil.

The five illustrations above (Figures 1 to 5) show in five consecutive steps the idealized evolution of the Thermobank from a rudimentary hot gas system on up.

In Figure 1 is shown a simple refrigerating system with the addition of a hot gas line, which is controlled by a shut-off valve. The hot gas line branches off the compressor discharge and enters the lowside between the expansion valve outlet and the evaporator. For defrosting, the shut-off valve is opened permitting the hot gas to pass directly from the compressor discharge into the evaporator. The evaporator now becomes an "ice-cooled" condenser. The hot gas is liquefied, giving up its heat of condensation to melt the ice off the coil.

In the system shown in Figure 1, the refrigerant condensed in the evaporator during defrost is conducted back to the compressor through the suction line as a liquid. Some of this liquid is evaporated in the suction

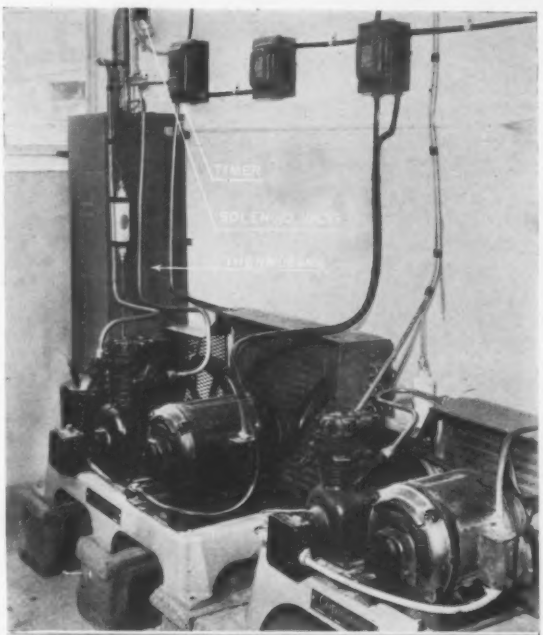


Figure 8 (above, right)—Thermobank and defrosting devices for ice cream hardening room shown below. Smaller machine serves a 35° anteroom. Figure 9 shows installation of Thermobank evaporator in the room.

line and the remainder in the compressor. Unfortunately, the heat supplied to the refrigerant in the suction line and in the compressor is not sufficient to replace the heat given up in the evaporator. This is especially true when the temperature surrounding the compressor is low and the ice accumulation on the evaporator is considerable. Also, the admission of considerable quantities of refrigerant liquid into the intake of the compressor frequently proves to be injurious to the machine, especially at high rotative speeds.

The system shown in Figure 1 is therefore impractical for two reasons:

(a) It does not always provide enough heat for complete defrost, and

(b) It would soon cause compressor trouble.

Figure 2 shows one of several methods to improve the simple hot gas system. Here a re-evaporator is added in the suction line between the evaporator outlet and the compressor inlet. In this instance the re-evaporator is essentially a liquid trap, electrically heated during the defrost period. The liquid refrigerant coming from the evaporator during defrost is re-evaporated in the liquid trap and enters the compressor as a vapor. Thus, a dual purpose is served, namely, the necessary heat is added to the system and no liquid reaches the compressor.

A disadvantage of the system shown in Figure 2 is that the heat in the re-evaporator is not instantly available at the beginning of the defrost operation. By the time the electric heater is warm, a large quantity of liquid has already reached the compressor. Another difficulty with the electrical method of re-evaporation is that the heater must be of a comparatively high capacity in order to re-evaporate the liquid quickly. Furthermore, most electric heaters have a limited life.

In Figure 3, an improved type of re-evaporating device is incorporated in the suction line. The refrigerant liquid trap is now surrounded by a body of warm brine which acts as a heat-hold to supply instantaneously the necessary heat to re-evaporate the refrigerant liquid as soon as defrost starts. The brine is kept warm at all times by any source of heat such as a gas flame. Also shown in Figure 3 is an oil return line between the bottom of the liquid trap and the suction line to insure the return to the compressor of any oil that might accumulate in the liquid trap.

Figure 4 is identical to Figure 3, except that instead of the gas flame the heat to warm the brine jacket is now supplied by the refrigerating system itself. The high temperature gas from the discharge of the compressor first passes through a heating coil located in the brine jacket, deposits or "banks" some of its heat there and then proceeds to the condenser. The re-evaporator, embodying a heat-hold of this type, is called the "Thermobank".

Figure 5, which in principle is identical to Figure 4, shows a complete Thermobank system. The most important added features in Figure 5 are the following:

(a) Insulation is added to the Thermobank to conserve its heat in cold surroundings.

(b) A self-defrosting drain pan—using the same hot gas to eliminate ice accumulation in the drain pan during defrost.

(c) A solenoid valve is now replacing the hand shut-off valve in the hot gas line shown in Figure 1. The solenoid valve is controlled by an electric timer, which opens and shuts the solenoid valve every time the ice coat on the coil has grown to a predetermined thickness, thus making this system completely automatic.

Every refrigerating system delivers to the condenser all of the heat picked up by the evaporator plus the heat of compression. All of this heat is normally rejected as waste heat by the condenser. The Thermobank system utilizes part of this heat, storing it in the heat-hold (a non-corrosive antifreeze in the re-evaporator) for use during defrost. This is accom-

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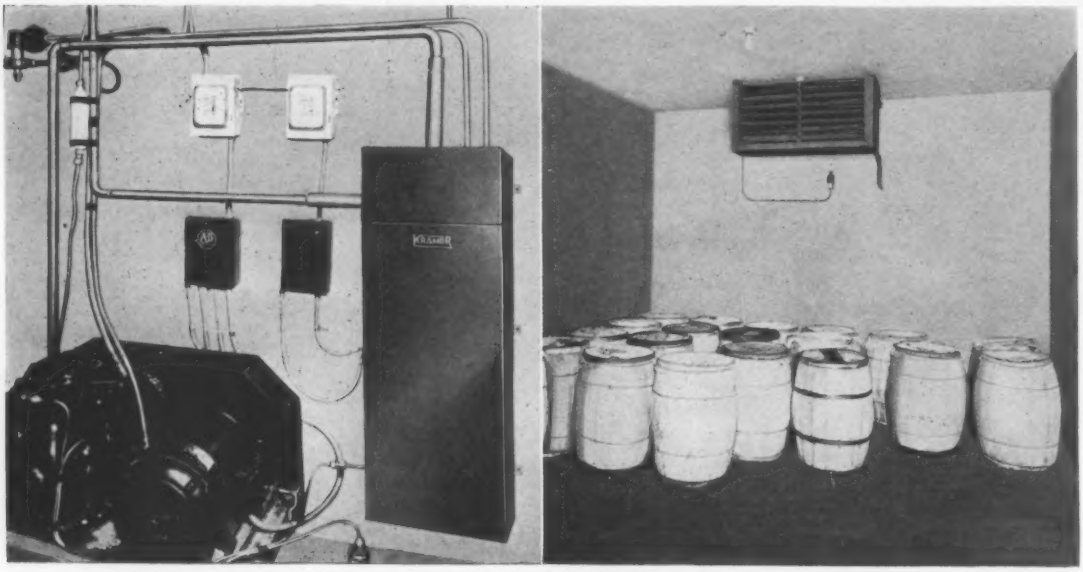
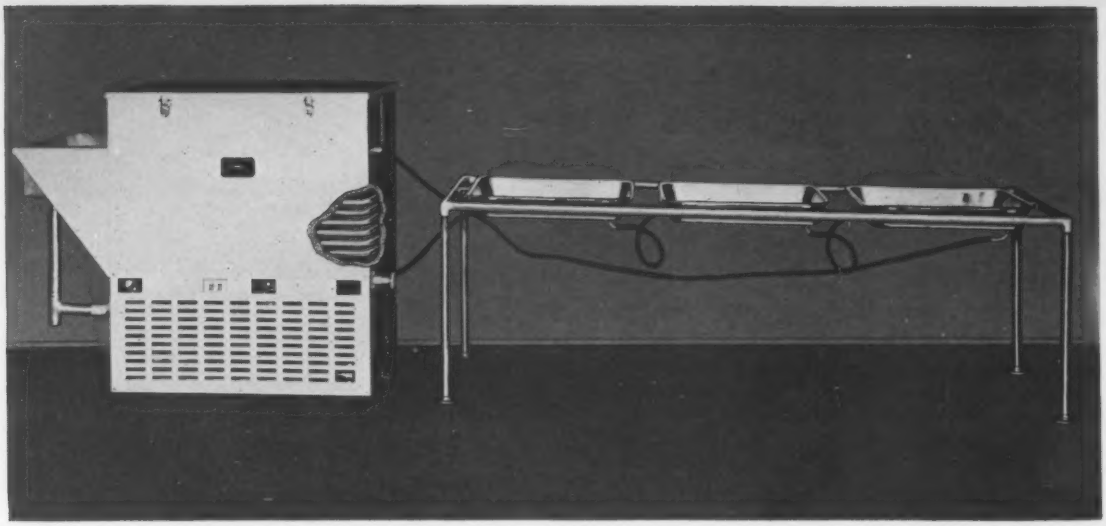


Figure 10 (left) Thermobank and defrosting devices for 28°F. storage room for packed meat. Figure 11 (right) shows installation of the Thermobank evaporator inside this room.



Temperature controlled aerial type film and print processing unit.

Cooling your "Shots"

Refrigeration helped to photograph the war; now, advances made in equipment and methods will help civilians, too

By James J. Goodwin
Temprite Products Corp.

ONE of the lesser known, but extremely important, contributions of the refrigeration industry to the war efforts of the United States and her allies, was in the photographic processing field.

The lack of topographical information on the various war theatres, and the extreme speed of movement occasioned by air operations and mechanized ground forces, made accurate, high speed photography one of the more important phases of military operations.

It was soon evident that standard photographic equipment was not suited for military purposes and the photographic industry started in immediately to develop sturdier, higher speed cameras, higher speed film and developing solutions, more stable printing paper and many other items necessary to obtain photographs that would give the maximum in accurate clear-cut results in the minimum period of time.

Development of high speed, more sensitive photographic film and print paper, together with its use under the most extreme climatic conditions, forced the realization that temperature control was a very necessary part of the film and print developing process.

Photographic equipment makers,

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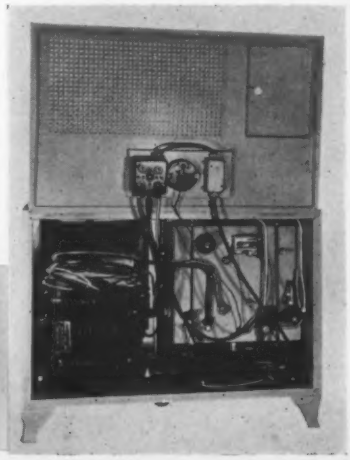
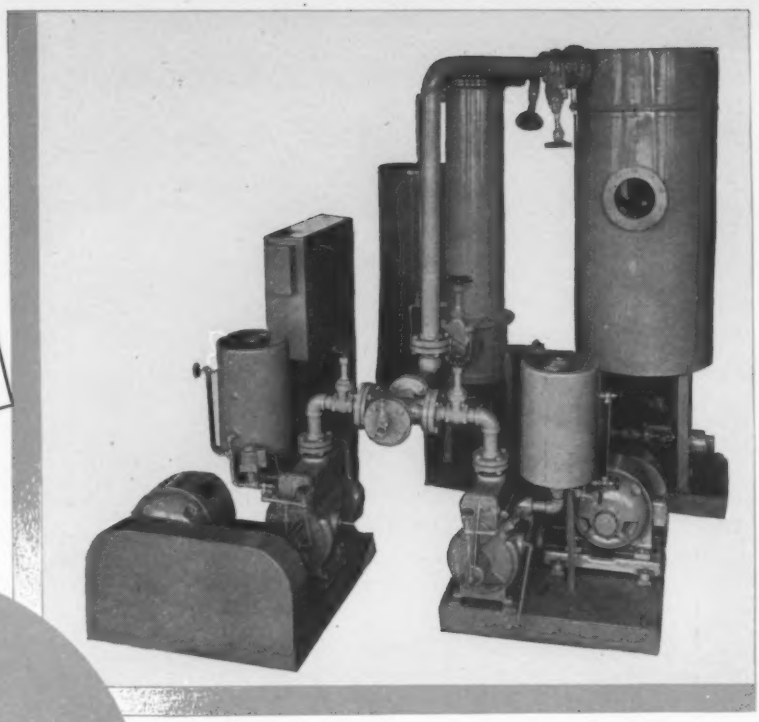


(Left) Temperature controlled photographic map and lithography processing unit, showing the three double-bottomed solution trays.

(Right) Another view of the map processing unit showing condensing unit, water cooler and heater assembly, circulating pump and other parts.



Here is the vacuum pump oil dehydration system, and (far right) a diagram of the manner in which the system works. Dotted figures in the diagram show vacuum pump layout.

Drier Than Dry...

Hermetically-sealed units are that way today when they leave the factory. Here is a story of a quality-control process that has gone a long way in helping to assure positive dehydration of these units

MOST of us are inclined to take pretty much for granted the fact that the hermetically-sealed refrigerating units delivered to us today are "drier than dry"—that is, with every possible trace of moisture eliminated from the finished product as a result of extraordinary measures taken, during manufacture, to see that moisture doesn't get into the equipment in the first place. Old timers in refrigeration will remember that it wasn't always that way.

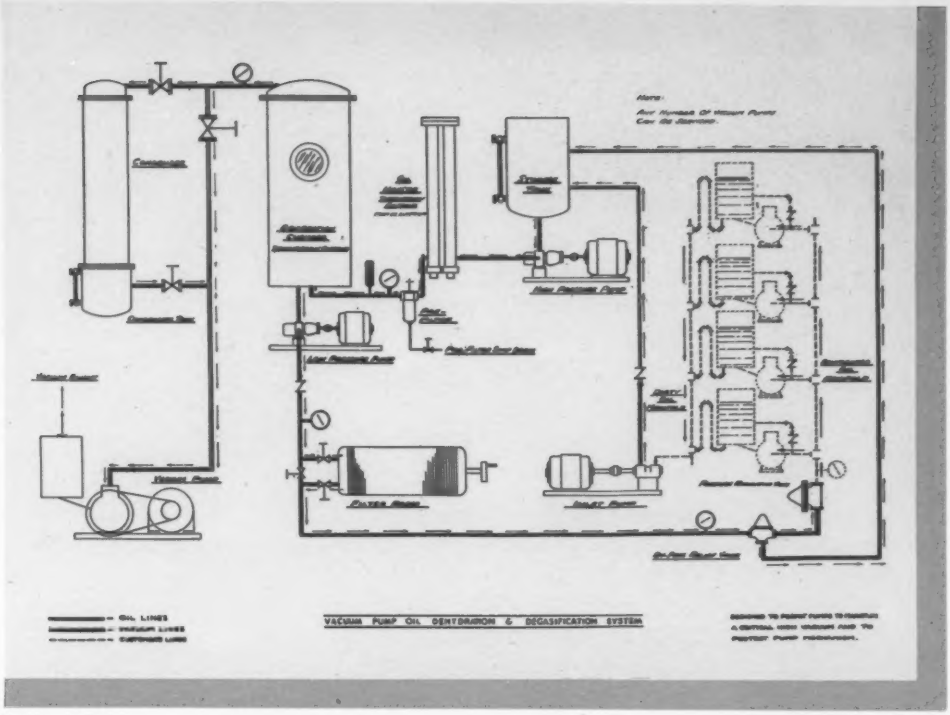
The manufacturers who pioneered sealed-unit equipment had to whip their production problems one by one; and no problem was tougher to lick than dat ol' Debbil, Moisture.

Moisture is still as serious a problem to sealed-unit makers as it ever was, but the increasing number of manufacturers turning out this type of equipment today are fortunate in having as an ally in this anti-moisture campaign two pieces of dehydration equipment originally developed for use in taking the moisture out of oil-filled cable. "Discovered" during the war-time years by engineers of a leading refrigeration manufacturer in the plant of another division of the company, the equipment was adapted for its present use in refrigeration by its manufacturer, Buckeye Laboratories Corp., Cleveland.

In principle, this type of equipment is now employed (or in process of installation) by virtually every manufacturer of sealed condensing units in the industry today. All of which should give you some idea of the pains that these manufacturers, who are typical of the class of producers serving the refrigeration industry, go to in assuring "quality control" of their products.

Technically speaking, the anti-moisture equipment is referred to as "degasification and dehydration equipment for refrigerator oils," and it is applied at two points in the manufacture of hermetically-sealed units: (1) In the final charging of the units with refrigerant and oil, after their assembly has been completed, and (2) In the dehydration of the oil used in the vacuum pumps which are used to dry-out the refrigerating units in a vital part of the assembly operation itself.

Let's consider first the degasifying and dehydration equipment used to



enable the filling of hermetically-sealed units with oil that is absolutely dry and free of entrained gases, both free and in solution. Any moisture in the oil, we know, tends to reduce the lifetime efficiency of a refrigerating unit—and this is especially true in the case of hermetically-sealed machines. Performance of sealed units in the field depends upon the condition they're in when they leave the factory—so insuring a "drier than dry" condition is a vital part of the manufacturing operation.

Modern refrigerator oils are as dry as science can make them when they leave the refineries, but even the infinitesmal amount they pick up in the drum and in transit are removed by the degasification and dehydration equipment we're describing here. It works this way:

Oil to be used in the final charging operation is taken from the drum and is pumped, through a pre-filter, into a storage tank that holds one drum of oil. As it is being transferred to the storage tank, the oil is heated to operating temperature and sprayed

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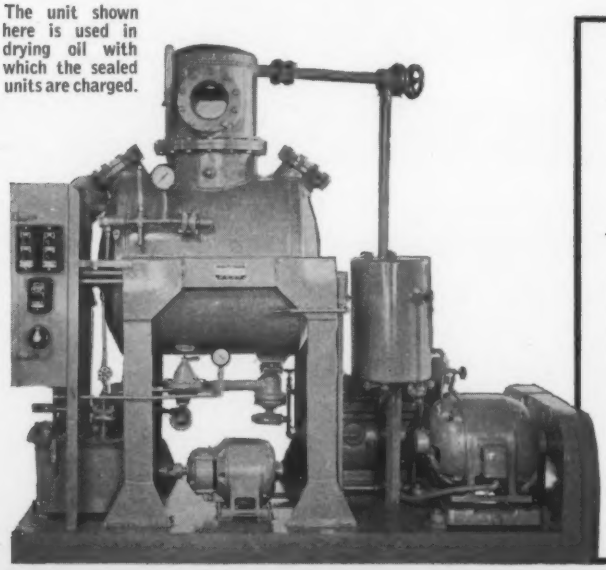
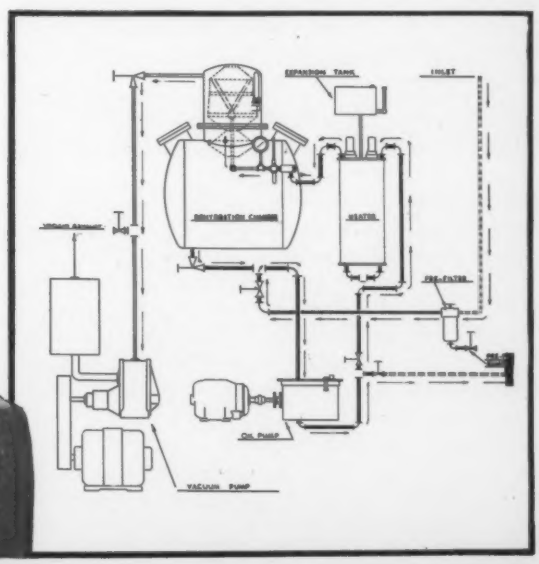
The unit shown here is used in drying oil with which the sealed units are charged.

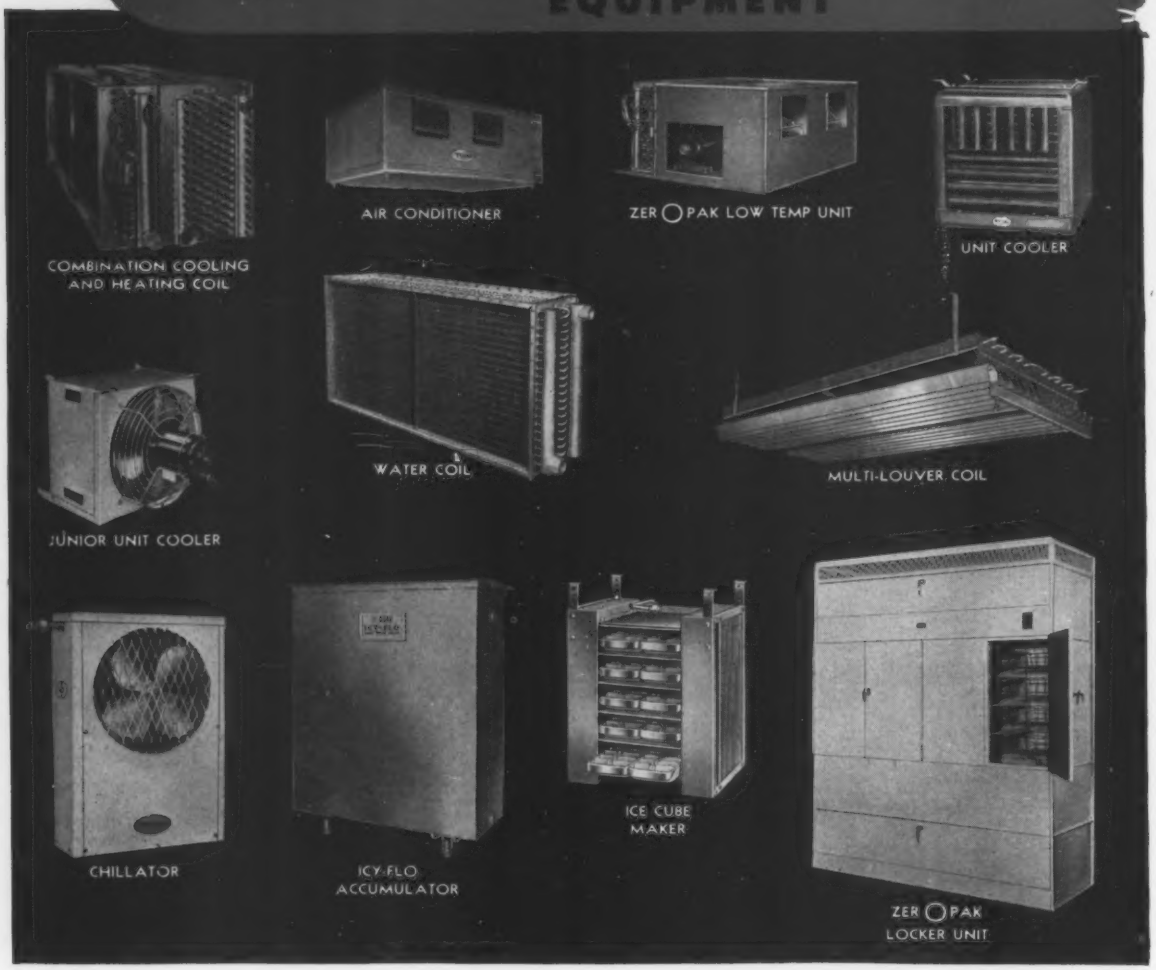




PROVED and PREFERRED

FOR EVERY NEED

McQuay AIR CONDITIONING and REFRIGERATION EQUIPMENT



THE proved performance of the ZerOpaK line of Speed Tunnel Freezers is the most outstanding development in the entire locker plant industry.

The efficiency of this unit has enabled locker plant operators to meet the excessive overload conditions placed upon them by a frozen food conscious public. This same performance is inherent in all McQuay refrigeration and air conditioning units and coils, which are manufactured in a large number of sizes and types to fit all requirements.

Write for your McQuay catalogs today, indicating the types of equipment in which you are most interested. McQuay, Inc., 1643 Broadway St. N.E., Minneapolis 13, Minn. Representatives in all principal cities.

. . . . AIR TEMPERING EQUIPMENT ESPECIALLY DESIGNED FOR INDUSTRY

McQuay INC.

THE REFRIGERATION INDUSTRY

George J. Boepple and **Leonard K. Wright, Jr.,** both recently discharged from the armed forces, have been added to the field engineering staff of Alco Valve Co. Mr. Boepple has taken over Alco's Philadelphia office. He was serving as a field engineer out of Alco's New York office when he entered the Navy in 1941. Mr. Wright has succeeded John B. Meyer in Alco's southeastern territory. Before entering the Army in 1942 he was district manager in Des Moines for Ansul Chemical Co.

Mr. Boepple

Mr. Wright

●

Floyd M. Duvall, formerly manager of the Chicago Dugas office for Ansul Chemical Co. is the new district office manager for Ansul refrigerants at Indianapolis. The rearranged Indianapolis office territory which Mr. Duvall will cover consists of Indiana, Ohio, lower Michigan, Kentucky and Tennessee. Mr. Duvall succeeds **L. T. Plouff,** who has been advanced to assistant sales manager of Ansul's refrigeration department. **Clarence L. Johnson** replaces Mr. Duvall as manager of the Dugas office.

Mr. Duvall

●

Edward Donovan, former member of the advertising department of Frigidaire, has joined the copy staff of Ross Roy, Inc., Detroit agency. With Frigidaire, Mr. Donovan specializes on home freezers and ranges.

●

Robert P. Quinn has been appointed assistant director of sales of applied and packaged air conditioning for Carrier Corp. Mr. Quinn, who served three years as a major in the Army Air Forces, formerly was manager of the air conditioning and refrigeration division of Shook & Fletcher Supply Co., Birmingham.

●

Oliver B. Hafner and **Floyd C. Lowell** have joined the engineering staff of the Amana Society's refrigeration division at Amana, Iowa. Mr. Hafner formerly was with C. V. Hill & Co., Trenton, N. J. manufacturer of commercial refrigeration equipment. Mr. Lowell had been eastern district manager for Universal Cooler Corp. since 1942, prior to which he had been refrigeration manager for C. V. Hill and a wholesale commercial sales manager for Kelvinator.

Mr. Hafner Mr. Lowell

●

Two personnel changes have been announced in the organization of Northwest Baker Ice Machine Co., subsidiary of Baker Ice Machine Co., Inc. **Vincent J. Kaufman** has replaced Frank W. Knowles as general manager. Mr. Knowles recently resigned to devote his entire time to personal interests. Mr. Kaufman was formerly assistant chief engineer of Baker. **Harry L. Martin,** formerly of Commercial Controls Corp., Rochester, N. Y., a newcomer to the refrigeration industry, has been appointed treasurer of Northwest Baker.

●

Edwin M. Perkins has been named a regional manager for Admiral Corp., Chicago. Before joining Admiral, Mr. Perkins was manager of the component section of the Chicago Signal Corps production field office. Prior to this wartime service he was district manager for the Clark Water Heater division of McGraw Electric Co., and before that had served as commercial and sales manager of Kansas Power Co. The district which he will cover has not yet been announced.

Mr. Perkins

●

Appointment of **Frank R. Markley** as general sales manager of Sun Oil Co. has been announced by Samuel B. Eckert, vice president in charge of marketing. Mr. Markley, formerly manager of the company's industrial products department, will serve as assistant to Mr. Eckert in the conduct of all sales activities. **Ray H. Anders** succeeds Mr. Markley.

●

Two changes in the personnel of its manufacturing division have been announced by The Crosley Corp. **O. E. Norberg,** formerly chief refrigeration engineer, has been promoted to the position of manager of refrigeration and appliance engineering. **H. W. Deuker,** former director of quality, has been named works manager of the company's Cincinnati plants.

Mr. Norberg

Mr. Deuker

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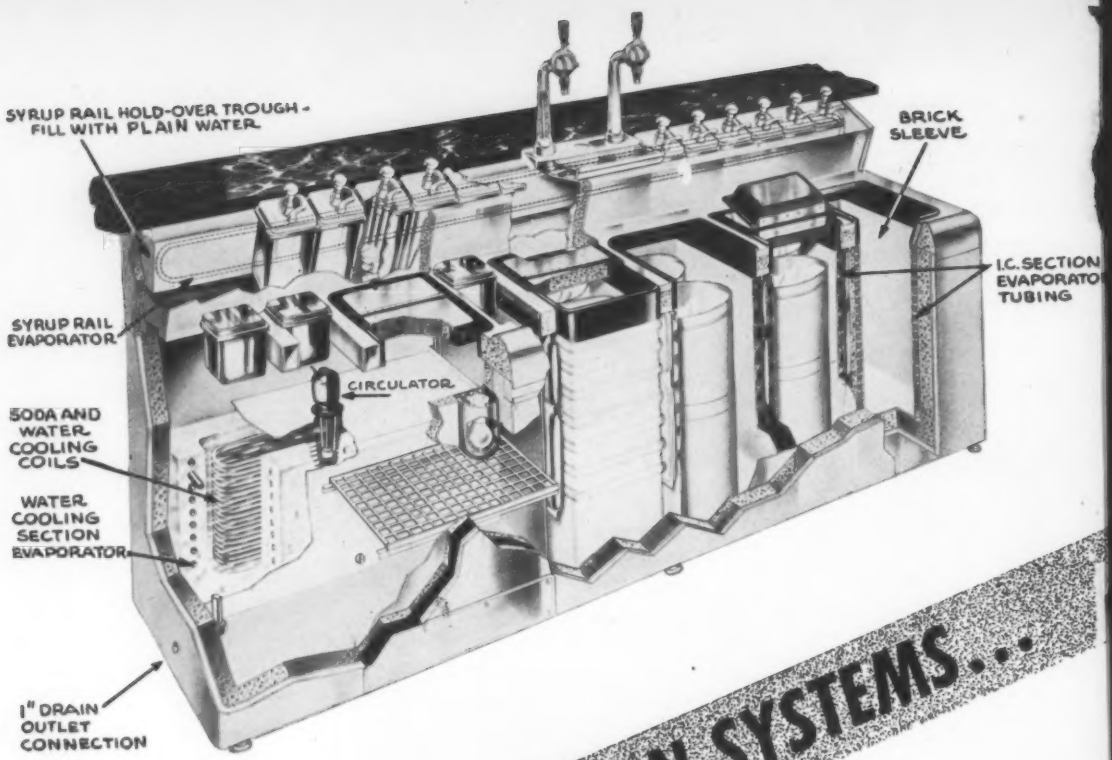

SYRUP RAIL HOLD-OVER TROUGH - FILL WITH PLAIN WATER
BRICK SLEEVE
I.C. SECTION EVAPORATOR TUBING
SYRUP RAIL EVAPORATOR
CIRCULATOR
SODA AND WATER COOLING COILS
WATER COOLING SECTION EVAPORATOR
1" DRAIN OUTLET CONNECTION

"LIQUID" REFRIGERATION SYSTEMS...

By J. G. Praetz

General Service Manager
Liquid Carbonic Corp.

THE "Coldsleeve" soda fountain has been developed around the "holdover" principle in order to obtain the lowest possible power consumption as well as simple, trouble-free operation. The building of "holdover" into these soda fountains, while more costly to construct, permits the use of smaller size condensing units with more balanced 24-hour condensing unit load conditions, due to the ability of the soda fountain to store up refrigeration both in water cooling section and syrup rail ice formations, as well as in the ice cream section. (Figure 10). This "balanced load condition eliminates any tendency to short cycle on the condensing unit with resultant long machine life, minimum service troubles and lower power consumption (operating costs).

Refrigeration system consists of three direct expansion evaporators, (1) the syrup rail, (2) the water cooling section and (3) the ice cream section. Each section has a separate thermostatic expansion valve for refrigerant control. The syrup rail and the water cooling section evaporators have in addition a suction temperature control to regulate the ice formation while the ice cream section temperature is controlled directly by a single thermostatic switch.

Ice Cream Section. A primary refrigerated surface is provided on each of the four sides of the extra heavy tinned copper individual ice cream sleeves (Figure 11) by wrapping copper tubing all the way around the sleeve. The ice cream section evaporator is made in one assembly with the tubing connections between each sleeve silver soldered. Long holdover is obtained through the high specific heat (holdover effect) of an asphalt plastic bonding material which surrounds each ice cream sleeve.

Refrigerant flow to the ice cream section is controlled by a TEVF207 thermostatic expansion valve (orifice.045) located in the control service panel on the front of the unit. The refrigerant passes first to the brick sleeve, which is maintained at substantially lower temperature than the bulk sleeves by the use of additional coils of copper tubing. From the brick sleeve the refrigerant passes to the end bulk sleeve and then back in series through each bulk sleeve, leaving the ice cream section from the sleeve directly adjacent to the brick sleeve. The brick sleeve on "Coldsleeve" soda fountains is the extreme right hand sleeve from the dispenser's position.

The TEV control bulb is inserted in a deep bulb well, which is attached to the suction line from the bulk

Fig. 10 (left)—X-Ray view of "Coldsleeve" soda fountain 40-gallon model with end dry storage compartment.

Part 3 of a soda fountain series prepared especially for readers of The Refrigeration Industry

Installation & Service

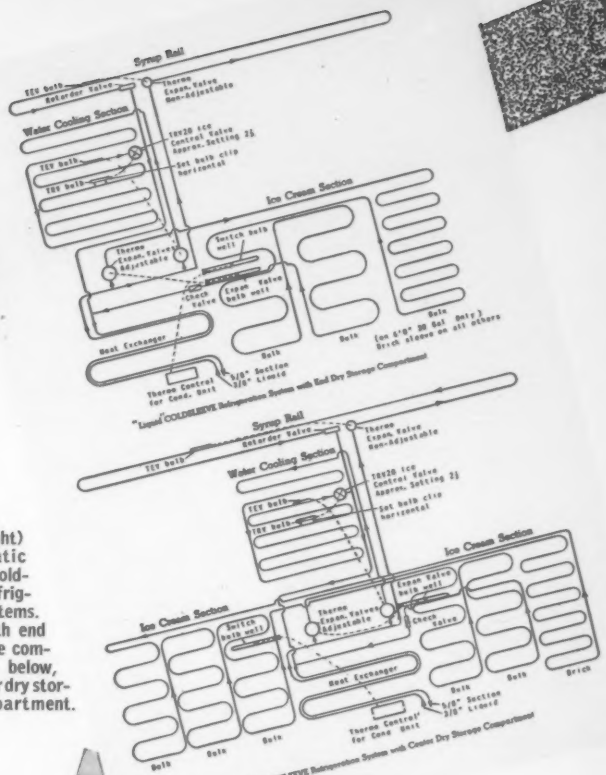


Fig. 11 (right) —Schematic views of "Coldsleeve" refrigeration systems. Above, with end dry storage compartment; below, with center dry storage compartment.

sleeve at the end of the ice cream circuit. The well is accessible through the dry storage compartment. The bulb should always be pushed to the bottom of this well and the well filled with petrolatum or vaseline. The bulb wells are filled with petrolatum at the factory, and the bulbs are inserted in their respective wells. The TEV valve is factory set for 7° superheat, and should not require readjustment.

The thermostatic expansion valve bulb well is on the right side (from dispenser's position) of the dry storage compartment on all these fountains. On all *center* dry storage compartments, the temperature control bulb well is located on the *left* hand side of the compartment. On fountains with *end* dry storage compartments, *both* the thermostatic expansion valve and temperature control bulb wells are located on the *right* hand side with the switch well located *above* the valve well.

Water Cooling Section. The soda and water cooling section makes use of the continuous-loop type evaporator, which builds up a substantial holdover capacity in an ice formation in the water bath. This type of evaporator will not cause short-cycling and does not require an oil separator on the condensing unit or a surge tank. This cooling section is the same as was shown and described previously under the "Lifetime" fountain.

Syrup Rail. The syrup rail is refrigerated by an ice wall directly

Continued on page 60

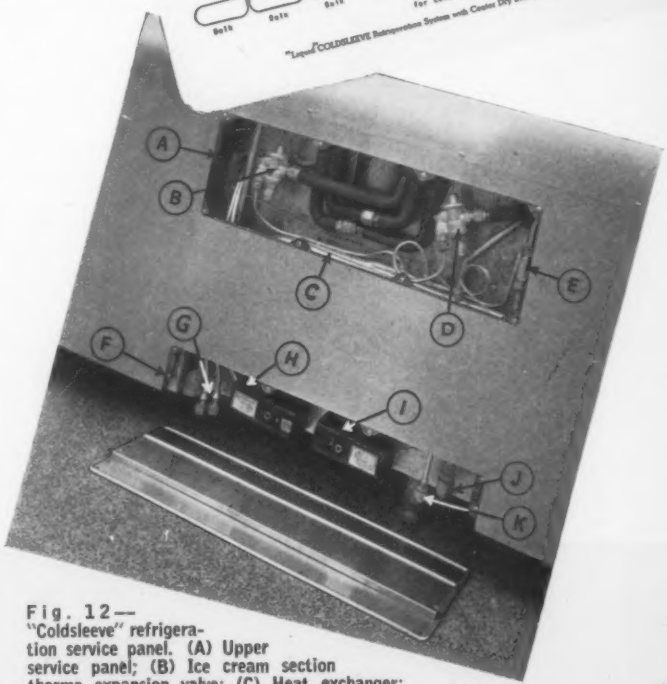
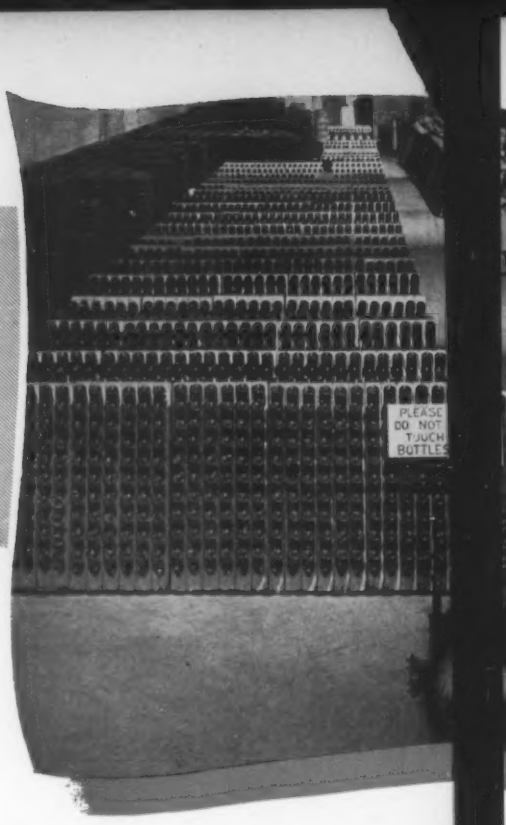


Fig. 12— "Coldsleeve" refrigeration service panel. (A) Upper service panel; (B) Ice cream section thermo expansion valve; (C) Heat exchanger; (D) Water-cooling section thermo expansion valve; (E) Check valve; (F) Lower service panel; (G) Soda, water, and drain connections; (H) Circulator control; (I) Temperature control for condensing unit; (J) Suction line; (K) Liquid line.

Refriger-aging



By Robert Latimer

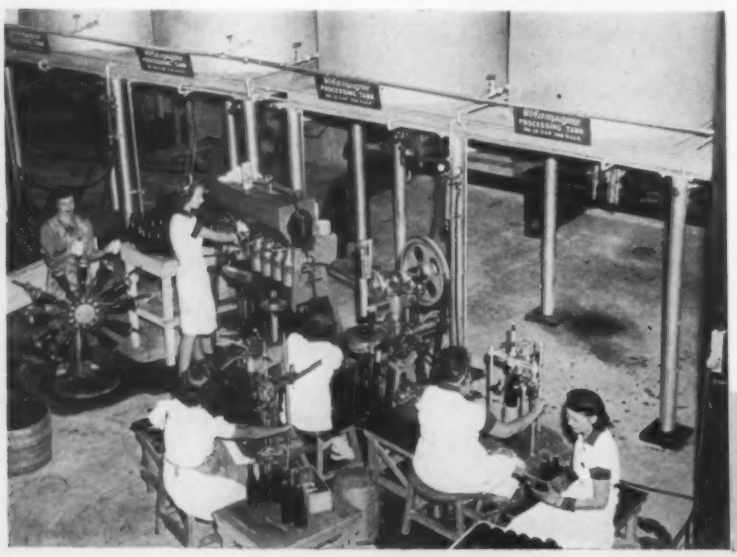
AN unusual application of low temperature refrigeration in both bulk and bottle-fermented champagne production has stepped up this aggravatingly-slow process for Roma Wine Co., Fresno, Calif.

Refrigeration has supplanted, or at least modified many of the tedious nurturing steps which previously had made production of this type of wine a headache to the huge California winery. Since 1940, the deft use of refrigeration in all processes has been responsible for great strides, according to George Darcy, veteran champagne maker in charge of this operation for the company.

Prior to adopting "refrigeration instead of age" all champagnes, American and European, were traditionally aged in the bottle or magnum, after the proper ingredients had been mixed, seassoned, and passed on by experts. The entire fermentation process took place in the bottles, laid at 45-degrees on wooden racks, and turned 90-degrees at regular intervals. As colloids and other materials in the delicate liquid precipitated, it was necessary to open the bottles and pour out the sediment, one of the worst production nuisances.

Much champagne was always lost through gas pressure during this operation, painstakingly done by experts who snatched out the cork, blew off the sediments and recorked the bottles only after years of training in the work. Such methods were practical in the ancient wine cellars of Europe, where age was champagne's most valuable asset. However, in the insistent American market, demanding more and more champagne each year and with less emphasis on aging, it has been virtually impossible to use cellar-aging methods for more than a small percentage of the market.

Roma Wine Co. operates a bottle-fermentation department following the above lines for the fastidious champagne buyer and connoisseur—but most of its production has been transferred to "bulk process" wine-making under the "Charmat" process. This system, invented by a Frenchman but developed in the United States, utilizes stainless steel pressure tanks and refrigeration to



Left—Pressure bottling of champagne which is made in the stainless steel refrigerated tanks in the upper part of the picture. Refrigeration efficiently supplants aging in precipitating colloids and tartrates present in the wine.

This is the modified version of the traditional bottle-fermenting department. Neck freezing apparatus is shown in right front center.

"Cold" pinch-hits for "old" as scientific refrigeration speeds the aging process for champagne at Roma's large California winery

supplant the slow bottle method.

Chief utilization of refrigeration at Roma has been in the Charmat process, where controlled cold guards the stability of champagne in tank fermentation, while automatically precipitating out colloids and tartrates more efficiently than the time-honored bottle process. Research and experimentation by Roma's refrigeration engineering staff has developed a practical system of refrigerating champagne to save production time.

Champagne in the Charmat process is fermented and precipitated in 16 silver-painted tanks of 950 gallons capacity, arranged in a series along the rear wall of the champagne department. Each tank is glass-lined, and is constructed of high tensile steel to withstand a steady pressure up to 500 pounds per square inch. There are two outer jackets enclosing each tank, one of heavy steel and another of galvanized metal, which incorporate an 8-inch layer of heat-resistant granulated cork, and the cooling jacket which supplies direct refrigeration to the entire tank. The brine jacket is chemically and metallurgically treated to withstand the corrosive action of a 5.3 sodium chloride solution, and to spread remarkably low temperatures evenly over the tank's contents.

The raw champagne elements, under Mr. Darcy's system, are delivered into the imposing battery of aging tanks after correcting, testing, sugar addition, etc., at a temperature averaging around 80 to 86° F., where it will be pulled down to 20° F. in the space of 18 hours or less after complete fermentation.

Research has demonstrated that champagne can stand temperatures far below freezing without ill effects; therefore each tank is operated at

Right—Mr. Grasso, head of the bottle fermenting department, pulls an ice plug from a neck-frozen champagne bottle, thereby removing sediment which had settled in the neck.

a minimum temperature for a period of five to six days, using 32,000 BTU's on each of the compressor units.

Refrigeration is applied by two 3 H. P. Frigidaire water-cooled compressors, using Freon refrigerant to chill the brine tank. Actually the plant is underpowered and needs more capacious equipment which is presently on order.

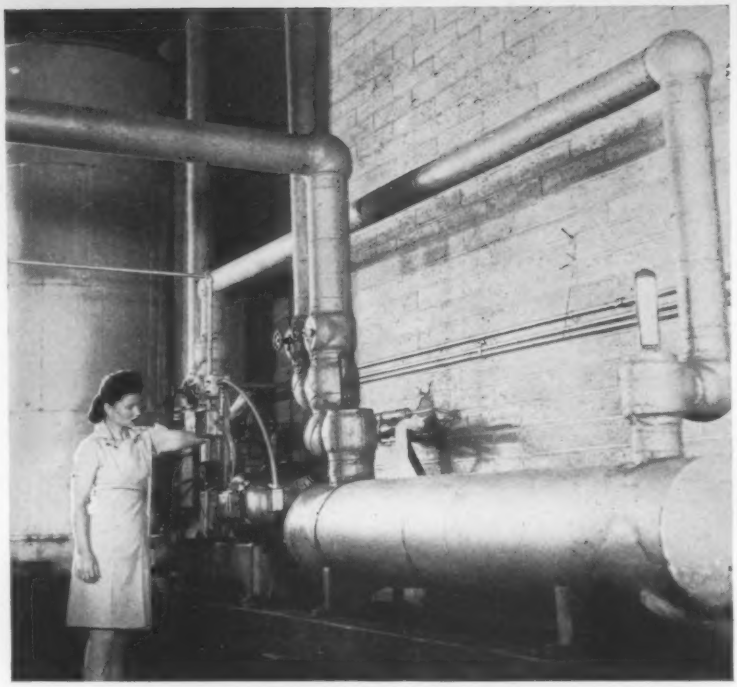
Through the steady chilling period, when samples are taken every few hours, definite precipitation and coagulation occurs. Colloids are coagulated first by molecular attraction; then the dead yeast spores solidify on the bottom. Finally neutral tartrate of potash is precipitated at the lowest temperature, which is 20° F. Through this period the champagne is constantly cooling. Daily tests and visual checks keep a close record on each tank. At the end of the "run" clear champagne is piped off by pressure pumps and tubing above the sediment level, isobarically filtered and isobarically bottled. The residue of precipitates is then removed, and the tank cleaned. Tank fermentation and precipitation in this way has been consistently improved since 1940, when it first became a permanent feature at Roma.

It's a "Show Spot"

Tanks, refrigeration compressors and all equipment is kept beautifully painted and polished, making this department a "show spot" which the company is proud to exhibit to visitors.

By far the most novel use of refrigeration which company engineers perfected, however, is neck refrigeration of bottles in the bottle-fermented champagne department operated by Joseph Grasso. In this section, which faithfully follows the traditions of Europe in champagne making, the application of low temperatures not only results in a more stable champagne, but has eliminated loss and harassingly slow steps in getting it to the market.

Here, application of low temperatures begins with two large walk-in coolers, which are used to reduce the temperature of the kingly liquid immediately after original bottling. The bottles are moved into the coolers from a huge stock kept on the right side of a separate champagne-department building. Coolers are cork-insulated walk-in types with blower and coil circulation of chilled air, with capacity for 200 cases of champagne each.



Refrigeration equipment used in bulk processing of champagne. The thermometer reading (which cannot be discerned in this picture) is 18°F.

Automatic thermostats watch the temperature carefully, with alarms and light warning devices in the event it varies by 5° F. or more. They are located immediately at the head of this department, which consists mostly of racks and work tables, since all work is done by hand. Little or no machinery except for refrigeration appears anywhere.

Slow Cooling Does It

The bottles are chilled down slowly to 12° F. by means of circulating brine piping in the ceiling of the coolers, plus air circulation. Here again the temperature is kept lower than was thought practicable a few years ago. Over a period of eight to 12 hours, each bottle of champagne can be safely reduced from its average room temperature down to the below-freezing point of 12° F.

All normal tartrates are precipitated during this original cooling, which is the first step in fermentation. After this, all bottles in processing are racked on the left side of the department, where at an angle of 40-degrees, with necks pointing down, they are each rotated daily one eighth of their circumference in the traditional manner. A close daily check for precipitation of colloids, yeasts and tartrates then reveals when each bottle is ready for the formerly ticklish task of de-sedimentizing. This means merely taking out the cork to drain off the sediment layer which has formed in a grayish mass atop the cork.

In this operation, which formerly required an expert deft enough to remove the cork and replace it without losing half the bottle's contents, Roma has achieved one of its greatest operating economies, thanks to refrigeration. Now, instead of feverishly snatching out the wired cork and replacing it, the entire job is simply carried out by freezing the neck of the upside-down bottle into a solid plug of ice, which can be easily removed, carrying with it the residue of precipitates in one solid mass.

"Popping" the Corks

In order to handle this "disgorging" step feasibly, the refrigeration engineers have developed an open brine tank of 3½ by 3½ feet by 10 inches deep, equipped with a 3 H. P. compressor which brings the temperature down well below zero. Over this open tank is a cast iron lid provided with 56 neatly-spaced holes to accommodate the necks of 56 bottles. Inserted neck down, the bottles are

Continued on page 52

REFRIGERATION INDUSTRY *News*

CONTROL MAKERS MUST RETAIN DISCOUNTS

Manufacturers selling any of four types of automatic controls used in refrigeration and air conditioning are required by OPA to extend cash discounts as favorable as those granted during March, 1942, under the terms of an amendment to Order 1, MPR 591, which became effective Jan. 21.

The controls covered by the amendment are: low voltage electrical controls, 110-220-volt electrical controls, pneumatic controls (including air compressors, gauges, etc.), and direct-acting controls (hydraulically operated).

Amendment 4 altered Section 7.1 of Order 1 to read that maximum prices for sales by any manufacturer of these types of controls "shall be subject to the most favorable cash discounts which each manufacturer extended or would have extended to each class of purchaser during March, 1942."

PROGRAM FOR REMA-REWA CONVENTION STEVENS HOTEL, CHICAGO

REMA

MONDAY—MARCH 4

12:30 Noon—Product Section Luncheon, West Ball Room.

2 P. M.—Product Section Meetings, Private Dining Rooms 6-8-9-10-11-12-13-16-18 and 20.

7 P. M.—Annual Board of Directors Meeting, Private Dining Room No. 4.

TUESDAY—MARCH 5

9:30 A. M.—Closed R.E.M.A. Membership Meeting, North Assembly Room.

12:30 Noon—Joint Luncheon of Manufacturers and Wholesalers, North Ball Room.

2 P.M. to 10 P.M.—Opening of Conference Booths, Exhibition Hall, Lower Lobby.

WEDNESDAY—MARCH 6

10 A.M. to 12:30 P.M.—Joint Session of R.E.M.A. and R.E.W.A., North Ball Room.

2 P.M. to 5:30 P. M.—Second Day of Conference Booths, Exhibition Hall, Lower Lobby.

7 P.M. to 1 A.M.—Banquet, Floor Show, Dancing—Grand Ball Room.

THURSDAY—MARCH 7

10 A.M. to 4 P.M.—Final Hours for Booth Conference. Exhibition Hall.

REWA

SUNDAY, March 3

10 A.M.—Board of Directors Meeting, Room No. 4, Third Floor.

MONDAY, March 4

10 A.M. to 12:30 P.M.—Registration of Members, North End, Third Floor Corridor.

1:30 P.M.—Opening Session REWA Annual Meeting, Rm. 2, Third Floor.

TUESDAY, March 5

9:30 A.M.—Second Session, REWA Annual Meeting, Room No. 2, Third Floor. Immediately following this meeting, directors meet to elect officers.

12:30 P.M.—Joint REMA-REWA Luncheon and announcement of new officers, North Ball Room.

2 P.M. to 10 P.M.—Open for Conference Booth Meetings, Exhibition Hall, Lower Lobby.

4:30 to 5:30 and 7 to 9 P.M.—Showings of educational films sponsored by RSES in room adjoining Exhibition Hall.

WEDNESDAY, March 6

10 A.M. — Joint REMA-REWA Meeting, North Ball Room.

2 P.M. to 5:30 P.M.—Open for Conference Booth Meetings.

7 P.M. — Banquet, Floor Show, Dancing — Grand Ball Room.

THURSDAY, March 7

10 A.M. to 4 P.M.—Open for Conference Booth Meetings, Committee and Regional Meetings.

AUDITORIUM PATENTS NOW ASSIGNED TO PUBLIC DOMAIN BY COURT DECREE

The "Auditorium" air conditioning patents, in litigation on monopolistic counts since 1943, have been assigned to the public domain by a final decree entered with the consent of all defendants, according to U. S. Attorney General Tom C. Clark.

This decree brought to a close the civil anti-trust action in which the Department of Justice charged that the Auditorium Air Conditioning Corp. and certain manufacturers of air conditioning equipment had conspired to monopolize the manufacture, distribution, and installation of air conditioning equipment.

The defendants which are bound by the injunctions of the decree are: Carrier Corp., Syracuse, N.Y.; B. F. Sturtevant Co., Boston; York Corp., York, Pa.; Ross Industries Corp., New Brunswick, N.J.; American Blower Corp., Detroit; and Auditorium Conditioning Corp., New York City.

Auditorium Conditioning Corp. owned or controlled a large number of patents—popularly known as the "by-pass" patents—relating to a method of treating air in the air conditioning or cooling systems to obtain the desired conditions, and made a practice of licensing other firms to manufacture equipment under the Auditorium patents.

In addition to putting these patents in the public domain, the decree calls for the dissolution of Auditorium Conditioning Corp. and cancels all agreements between the defendants relating to obtaining and granting patent rights by Auditorium. It also prohibits defendants from enforcing any rights or collecting any royalties under the Auditorium patents.

PENN ELECTRIC FORMS OWN CANADIAN FIRM

A new Canadian company, Penn Controls, Ltd., has been formed to manufacture and sell in Canada the products of Penn Electric Switch Co., Goshen, Ind. The factory and sales office of Penn Controls, Ltd. are located at 284 King St., W., Toronto 2B, Canada.

Arthur H. Hills, well-known Canadian engineer

Mr. Hills

and sales executive, has been appointed to manage this phase of the company's operations. Before joining Penn, Mr. Hills was in full charge of manufacturing and sales for Sarco (Canada) Ltd.

Previous to organizing its own Canadian company, Penn products were sold and serviced through Powerlite Devices, Ltd, Toronto.

NEW CONTROLS FACTORY

Reliance Regulator Co. has announced erection of a new $25,000 factory building at 1000 S. Meridian Ave., Alhambra, Calif.

OUR NEW ADDRESS

THE REFRIGERATION INDUSTRY now is located in its new quarters at

1240 ONTARIO STREET
CLEVELAND 13, OHIO

Please change your records accordingly, and address all mail to this new location. Your cooperation in this respect will enable us to continue to serve you with the greatest possible speed and efficiency.

CANADIAN COOLER CO. GETS NEW OFFICERS

Dan Robertson, for the past 16 years vice president of Universal Cooler Co. of Canada, Ltd., has been elected president of that company. He succeeds F. S. McNeal, who also is general manager of Universal Cooler division, Marion, Ohio, and a vice president of International Detrola Corp., Detroit, of which Universal Cooler of Canada is an affiliate.

Howard Gray, for two years treasurer of the Canadian company, was elected a vice president in addition to his financial post. Fleming W. Johnson and William A. Alfs, both vice presidents of International Detrola, were elected to the board of directors. Other directors are: Mr. Robertson; Mr. McNeal; W. S. Ewens, Toronto; W. R. Newport, Toronto; and E. A. Wilson, Ingersoll, Ont.

Mr. Robert son said that the Brantford plant, which during the war manufactured many kinds of munitions, has completed its physical reconversion and is again producing refrigerating and cooling equipment, with expectation of reaching normal output rate in April.

CHICAGO CASE GROUP NAMES NEW OFFICERS

W. H. Sudekum of Hussmann Refrigeration, Inc. has been elected president of the Commercial Refrigeration Distributors Association of Chicago for the coming year.

Perry E. Joy, of Super-Cold Midwest Co, has been named vice president; Irving Shell, of Lee-Shell Co., secretary; and E. J. Matot, of D. A. Matot Co., treasurer. The officers, with Fred Avery, of Universal Store Equipment, will make up the organization's executive committee.

SALES OUTLET OPENS IN LITTLE ROCK

The Fort Smith Refrigerator & Equipment Co. has been formed here to distribute commercial refrigeration equipment and to contract for air conditioning installations. The company has an authorized and paid-in capital of $50,000. Officers are William Watkins, resident agent, Samuel Paulos and Franklin Wilder.

'SEVEN LEAGUE BOOTS' FOR MONITOR

Rex Cole (left), prominent New York home appliance distributor who is representative in that area for Monitor Equipment Corp., presents an original oil painting of "The Boy in the Seven League Boots" to T. K. Quinn (right), president, and P. B. Zimmerman, vice president, of the Monitor organization. The "Boots Boy" is Monitor's trademark symbol.

AVCO BUYS INTEREST IN FREEZER FIRM

The Aviation Corp. has acquired a 40% interest in Frozen Food Products, Inc., a company recently organized by interests close to Lehman Bros. to carry out plans for the design and distribution of home freezing units for frozen foods.

Avco has a contract for the exclusive production of the new company's three-foot home freezing units. The units will be manufactured in one of the plants of the Avco group of companies.

The expansion is a part of The Aviation Corp.'s postwar diversification program, which has included an expanded position in the home appliance field through acquisition of controlling interest of the Crosley Corp.

* * *

AVIATION CORP. IN FROZEN FOOD GROUP

Newest member of the Frozen Food Foundation, Syracuse, N. Y., is the Aviation Corp. R. C. Cosgrove, vice president in charge of sales for Avco, has been elected a trustee of the organization. Only other manufacturer-member of the foundation is Carrier Corp.

The organization, whose purpose is study marketing possibilities of frozen foods and freezer units, is comprised except for Avco and Carrier of individual department stores and retail store groups.

ICEBERG ANNOUNCES NEW DISTRIBUTORS

Iceberg Refrigerated Locker Systems has announced the following distributor appointments:

Goddard-Hottel Corp., Washington, D. C.; H. D. Smith Sales Co., Bluefield, W. Va.; D'Elia Electric Co., Inc., Bridgeport, Conn.; Victor Shaw Co., Charlotte, N. C.; Iceberg Equipment Sales Co., Chicago.

Brooking Refrigeration Sales Co., Cleveland; Cate-McLaurin Co., Columbia, S. C.; General Appliance Co. Denver, Colo.; 555 Inc., Little Rock, Ark.; Tennessee Valley Appliances, Inc., Memphis, Tenn.

Sunset Electric Co., Portland, Ore.; Sunset Electric Co., Seattle, Wash.; Columbia Electric & Mfg. Co., Spokane, Wash.; Ridgewood Fruit Industries, Inc., Winchester, Va.

* * *

DISTRIBUTORS SEE NEW ICEBERG UNITS

First public showing of the new Iceberg frozen food storage units was held in the Alms Hotel, Cincinnati, on Feb. 25 and 26. Distributor sales and service representatives from all parts of the country attended the preview.

Taking active part in the proceedings were the following officers of Iceberg Refrigerated Locker Systems: Ross R. Smith, president; Dr. Huston St. Clair, vice president; Sam C. Mitchell, general sales manager; and Jack Barragar, service manager.

YORK RESUMES ITS TRAINING PROGRAMS

To meet the need of a thorough educational program in engineering, production, sales, service, and factory management for its employees and for its returning veterans, York Corp. has formally opened its Institute of Refrigeration and Air Conditioning. The only one of its kind in the industry, the school has a potential capacity of 1,000 students annually.

Designed to cover every phase of York's activities, the Institute will provide courses ranging in duration from a 5-year cooperative engineering course run in conjunction with Pennsylvania State College, to a two-week "refresher" course.

For the time being, two divisions of the Institute are being reserved exclusively for returning York veterans. These are the comprehensive apprentice training courses, covering 13 different trades, and the York-Penn State cooperative course, both of which are recognized by the Veterans Administration.

The York-Penn State cooperative engineering course, discontinued during the war, and now functioning again, leads to mechanical and industrial engineering degrees, after which the men become full-time employees of York.

Under the sales training program, the Institute will offer intensive selling courses, including an application engineering course.

TWO FREEZER FIRMS CONSOLIDATED

R. H. Bishop Co., Champaign, Ill., has been incorporated to consolidate three companies formerly operated as Mid-States Engineering Co., Gemco Hanger Mfg. Co., and R. H. Bishop Co. President of the company is R. H. Bishop.

Both Mid-States and Bishop manufactured home freezers in addition to other types of refrigeration, air conditioning and ventilation equipment. The new corporation took over all assets of the three firms, and assumed all existing liabilities and commitments.

EEI SALES MEETING

Twelfth annual sales conference of Edison Electric Institute, discontinued last year because of travel restrictions, will be held on April 2 to 4 at the Edgewater Beach Hotel, Chicago.

NEW MIAMI RSES CHAPTER FORMED

Civic leaders of Miami, Fla. joined in the ceremonies marking the formal presentation of a charter to the newly formed Greater Miami Section of the Refrigeration Service Engineers Society. President of the new chapter is J. D. Nall. Other officers are: R. S. Smith, first vice president; J. H. Colvin, second vice president; Al Plagg, secretary; W. T. Pike, assistant secretary; A. L. Bizzell, treasurer; W. W. Kelley sergeant-at-arms.

WIS. RSES MEETS MARCH 16-17

First annual convention of the Wisconsin state association of the Refrigeration Service Engineers Society is slated to be held at the Park Hotel in Madison on March 16 and 17. Tentative program for this get-together includes the customary business and discussion sessions, installation of officers, banquet, and dance.

N. Y. CASE DEALERS FORM ASSOCIATION

Commercial refrigeration fixture sales outlets in the New York City area have recently organized the Commercial Refrigerator Distributing Association of New York, with W. O. Crabtree, of Hussmann Refrigeration, Inc., as president.

J. M. Woolridge of Seeger Refrigerator Co., is vice president; J. S. Lipack, of Super-Cold New York, Inc., secretary; and Harry Culbertson, McCray Refrigerator Co., treasurer. Directors, in addition to the officers, are Charles Q. Sherman, Weber Showcase & Fixture Co.; John Poth, Tyler Fixture Corp., and C. E. Webb, the Warren Co.

65 NEW LOCKER PLANTS IN GEORGIA

A report recently released by the Industrial and Agricultural Development Board of Georgia states that 65 new freezer locker plans were established, developed, expanded, or announced for development in Georgia during the past 15 months.

CAPITOL LEAGUE PLANS ALL-YEAR SALES SCHOOL

The Electric Institute of Washington (D.C.), in the belief that proper selection and training of salesmen is more important now than ever in view of expanded postwar appliance markets, has inaugurated a year-round sales training program open to all its members.

To encourage the wisest choice of sales personnel, the Institute has prepared a brochure giving full instructions on how to interview applicants to achieve maximum results and eliminate hit-or-miss hiring. A check-chart is included for the guidance of interviewers.

Directed by Robert F. Mook, the program has opened with refresher classes for sales managers. Actual sales classes will include training in fundamentals for beginners and specialized advance courses covering individual products. Actual demonstrations will be given in the courses, which will include complete kitchen planning in addition to individual appliances.

Mr. Mook, the Institute's new sales training director, formerly was with Commonwealth Edison Co., Chicago, in a similar capacity.

EUREKA WILLIAMS CORP. IS NEW FIRM NAME

Stockholders of Eureka Vacuum Cleaner Co. have approved the change of the company's corporate name to Eureka Williams Corp. and have reelected the company's directors and officers. The new name more properly represents the combined operations of the company's Eureka and Williams divisions which were established following the merger of Williams Oil-O-Matic Heating Corp. with Eureka last year, it is felt.

NAMED DEALER

Y-B Refrigeration & Air Conditioning Co., Inc., Clearwater, Fla., has been named authorized Frigidaire dealer in Pinellas County by Byars-Forgy Inc., Frigidaire distributor in that area. T. R. Yarborough, senior member of the firm, was in charge of the refrigeration and air conditioning engineering department of the Frigidaire branch office in Atlanta, Ga., for 10 years prior to the war. Walton M. Byars is the junior partner.

EXPANSION LAUNCHED BY LIQUID CARBONIC

An $8,500,000 expansion program has been launched by Liquid Carbonic Corp., Chicago. Included in the program, part of which is already under way, is a $1,000,000 soda fountain factory and office building and an $800,000 ice cream cabinet and refrigerator plant.

In the new fountain factory, adjacent the company's main office, Liquid will manufacture its complete line of soda fountain and luncheonette equipment. The company's new plant at Morrison, Ill. will produce Liquid Red Diamond ice cream cabinets, which are now being manufactured at Galesburg, Ill. The Morrison plant also will produce Liquid's entry into the home refrigerator field, the "Frostor."

CARRIER DEALER LIST HITS ALL-TIME HIGH

Carrier Corp., has announced appointment of five new distributors: General Utilities Distributors, Chicago; Appliance Distributors, Inc., Indianapolis; Thiele-Winslow Co., San Antonio, Tex.; Allied Distributing Corp., Norfolk, Va.; and Bickford Brothers Co. Rochester and Buffalo, N. Y.

According to Arthur P. Shanklin, vice president in charge of dealer sales this brings to thirty-two the number of distributors who now are franchised to handle one or more lines of Carrier products. These distributors have under them approximately 3,600 dealers. In addition, Carrier has granted franchises directly to some 190 dealers.

This gives Carrier substantially more sales outlets than ever before in its history, Mr. Shanklin states.

ADMIRAL PRODUCTION GETS UNDER WAY

Volume production of the Admiral "Dual-Temp" refrigerator will depend on the effects of the impending steel strike and other material procurement factors which at this time cannot be predetermined," reports Ross D. Siragusa, Admiral Corp. president. Other Admiral refrigerators, Mr. Siragusa said, will be available in limited quantities by February 15 and in sizeable volume by July 1.

HAYS CORP. ABSORBS COCHRANE METERS

The Hays Corp., Michigan City, Ind., manufacturer of industrial instruments and controls, has announced that Cochrane flow meters, formerly manufactured by The Cochrane Corp. of Philadelphia, have become a part of the Hays line of products and will be sold by Hays representatives as Hays-Cochrane instruments for flow, liquid level, pressure and temperature measurement.

The flow meters will continue to be manufactured in Philadelphia by The Penn Industrial Instrument Corp., an organization comprised of the same men who have been responsible for the production of these meters for many years.

Daniel Meyer and Mr. Fred Skirving, who have been associated with the instrument division of Cochrane Corp., for a number of years, have joined the Hays engineering staff at Michigan City and will specialize on flow meters and flow measuring problems.

MARSH MEN

Charlie Lubeck, 41-year employee of the Jas. P. Marsh Corp., Chicago gauge manufacturer, is decorated with a diamond studded pin marking him as the company's oldest employee in point of service by Barrett Scudder, Marsh president. The occasion was the formation of the "Marsh Clan" of veteran employes at the company's 80th anniversary party.

NEW GEORGIA FIRM

The Bruce Supply Co. opened recently in Cartersville, Ga., for the purpose of dealing in electrical appliances, including refrigerators and home freezing units. Bruce Schobel is owner and manager of the firm.

HOOVER DENIED LEGAL CLAIM ON ABSORPTION PATENT

Claims of the Hoover Co. to a reissued patent for an absorption type refrigeration unit have been denied by the U.S. Circuit Court of Appeals, upholding the decision of the Commissioner of Patents and the District Court.

Involved in the case were patents held by C. C. Coons (with the Hoover Co. as assignee) and a Mr. Bargholm. One of the points of contention was that in each system heat exchange between the solutions used took place three times.

The court decided, however, that the Coons patent provided for this triple heat exchange in a manner sufficiently different from that employed in the Bergholm design to nullify any claims of the Hoover Co. to the Bergholm reissue patent.

LIQUID CARBONIC HOLDS SERIES OF SERVICE MEETINGS

The Liquid Carbonic Corp. is sponsoring a series of meetings for refrigeration service men to be held from the Atlantic Coast to the Rockies. These meetings, scheduled from January 21 to April 18, are being staged in cooperation with the local chapters of the Refrigeration Service Engineers Society.

A complete program of lectures and visual demonstrations will be presented. Cut-away compressors and a condensing unit operating with a glass evaporator will reveal what happens within a refrigeration system in operation. Slides will be shown to explain various refrigeration circuits and units.

Liquid refrigeration experts who will conduct the meetings are: John G. Praetz, general service manager; George Monjian, northwest district supervisor, Fountain-Cabinet Sales division; and Arthur H. Blanton, southwest district cabinet service supervisor, Fountain - Cabinet Sales division.

CAIRO, GA. DEALERSHIP

Brown Brothers recently opened in the New Carroll Building Cairo, Ga. for the purpose of dealing in commercial and domestic refrigeration and air-conditioning units.

JOBBERS EXPAND

Baltimore, Md.

Parks & Hull Appliance Corp., Baltimore jobber, has taken over an adjacent building which it is remodeling to fit its own needs.

* * *

Saginaw, Mich.

J. Geo. Fischer & Sons, Inc., Saginaw jobbing firm, has purchased a former garage building which, when remodeled, will serve as the company's headquarters. The new building will provide 26,000 sq. ft. of ground floor space, of which 5,000 sq. ft. will be a modern showroom.

* * *

Charlotte, N. C.

Henry V. Dick & Co., Inc., refrigeration supplies wholesaler with headquarters in Charlotte, has opened two new branch offices in Raleigh, N. C. and Greenville, S. C., reports C. W. Eskridge president. The Raleigh branch is at 424 S. Dawson St., and the Greenville branch at 409 E. McBee Ave.

FLORIDA FIRM EXPANDS, TRAINS VETERANS

Earl E. Carver, owner of Carver Refrigeration Co., Tampa, Fla., manufacturer of refrigeration and air conditioning equipment has purchased a two-story building at 1111 Grand Central Ave. to house the expanded operations of his firm.

During the war the company was engaged in filing war contracts for refrigeration at military bases throughout the state, but now is reconverting to its peacetime manufacture of air conditioning and refrigeration for commercial applications.

Eleven of the company's present 17 employes are returned veterans, seven of whom are physically handicapped. These veterans are being trained in refrigeration and air conditioning work at a school operated by the firm.

FROZEN FRENCH FRIES ADDED BY MAXSON

The Maxson Food Systems Inc., New York City, has announced addition of French fried potatoes to its line of frozen food products now available in the New York area.

The partially pre-cooked potatoes are purposely unsalted so that they may be salted in the home to individual taste. Directions on the package call for twenty minutes of final cooking on the top shelf of the home oven.

DIRECTORS REELECT ALL YORK OFFICERS

All officers of York Corp. were reelected by the corporation's directors following the annual meeting of stockholders. They are: William S. Shipley, chairman of the board; Stewart E. Lauer, president; Elmer A. Kleinschmidt, executive vice president; Llewellyn Williams, vice president; John R. Hertzler, vice president; John F. Lebor, secretary and treasurer; Donald M. Magor, controller; Joseph F. Witman and Charles J. Malone assistant secretaries.

Previously the stockholders had reelected Carl W. Fenninger, Walter Geist, and John S. McMartin as directors for a three year term. Other directors now serving are Mr. Shipley, Mr. Lauer, Mr. Kleinschmidt, Mr. Williams, Josiah W. Gitt, Philip W. Glatfelter, and George S. Munson.

CROSLEY GETS LATIN AMERICAN OUTLETS

Three new Latin American distributors have been named by Crosley Corp. In Venezuela, Crosley will be represented by Riqueze & Bis in Caracas and MacGregor & Co. in Maracaibo. Martinez & Martinez, Inc. will handle the Crosley line in San Juan, Puerto Rico.

CANADIAN FIRM ORGANIZED BY RIDGLEY, FIDLER

A business operation specializing in the construction of built-in refrigeration, quick-freezing, and cold storage service for farms and warehouses has been opened in Abbotsford, British Columbia, Canada, by Ray Ridgley and Ray Fidler. Mr. Ridgley, a former resident of Toronto and Buffalo, N. Y., was formerly employed by Frigidaire at Leaside, Ontario. Mr. Fidler served during the war at Defence Industries, Ltd., Ajax, Ontario.

NOMA ELECTRIC BUYS REFRIGERATION CORPORATION

Purchase of Refrigeration Corp. of America, manufacturer of "Frigid Freeze" food storage equipment, by Noma Electric Corp. has been announced by Henri Sadacca, Noma president.

No change is contemplated in either officers or policy of the Refrigeration Corp., the announcement stated. John Bess, veteran of 20 years in the electric refrigeration field, will continue as president of the company.

Association with Noma, Mr. Bess stated, will enable Refrigeration Corp. to rush completion of its recently purchased factory facilities at Perth Amboy, N. J., and the additional working capital made available by the merger will enable the company to resume production of its commercial refrigeration equipment.

APPLIANCE CONTROLS GET THE "ONCE OVER"

Some of the soon-to-be-available General Electric control devices for domestic appliances are discussed by E. S. Bush (left), recently appointed manager of G-E appliance and aircraft control sales, and K. R. Van Tassel, manager of the company's control division.

Admiral Corporation CHICAGO · DUAL-TEMP REFRIGERATORS · ELECTRIC RANGES

WORLD'S LARGEST MANUFACTURERS OF RADIO-PHONOGRAPHS WITH AUTOMATIC RECORD CHANGERS

COOLING YOUR "SHOTS" . . .

Continued from page 33

while familiar with photographic problems, did not understand the principles of temperature control or heat transfer as it applied to photographic processing, and as no standard commercial equipment was available for this application, it was necessary to call upon the refrigeration industry to develop and manufacture equipment that would be suitable for the many varied applications and conditions that would be encountered.

In addition to the lack of technical information and past experience on this subject, the job was made even more difficult by the fact that each branch of the armed forces had photographic problems peculiar to itself, and no one particular design or series of designs would handle all applications. To illustrate: one branch had the dual problem of both processing long lengths of aerial type film and drying the processed film before printing, while a second branch was interested only in producing photographic maps of different dimensions, thus requiring entirely different equipment.

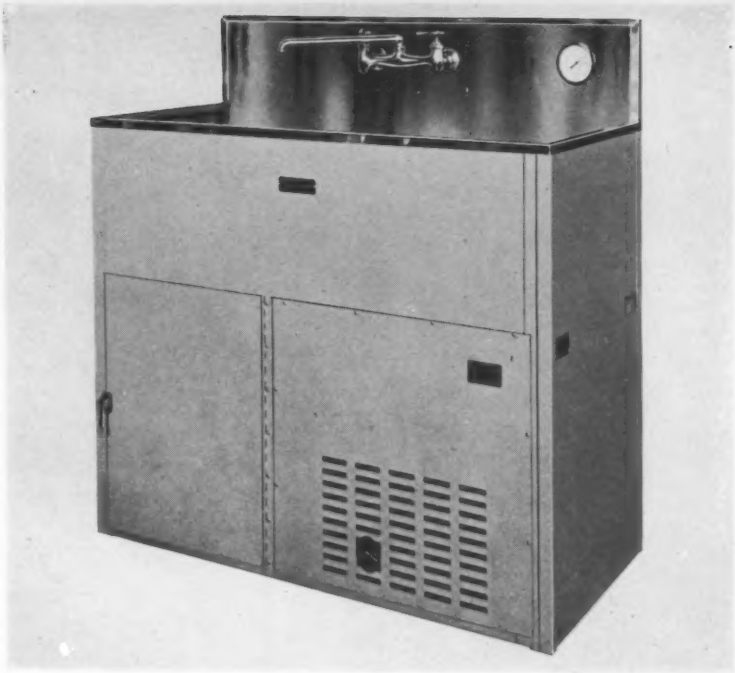
Many of the different units produced required both refrigeration and heating to maintain temperature control when subjected to seasonal climatic changes. Other units used refrigeration only, due to the location.

Following is a brief description of several of the more widely used types of units and their application.

1. Temperature controlled aerial type film drying unit.

This unit is a completely mechanized continuous film dryer designed to handle 200-foot rolls of 9-inch wide film at speeds varying from 6 to 10 feet per minute. The unit that was finally developed was entirely new in the film drying field, not only in speed of operation but in control of film humidity and surface quality. Principle used to obtain the desired results included not only a heating system but also a refrigeration system, used to extract excess moisture from the air and thus control the relative humidity. Heating system consisted of two sections, one being the use of radiant heat lamps warming the surface of a revolving highly polished film contacting drum, while the second section consisted of circulation of warm air over the surface of the film. This warm air was obtained from the refrigeration machine condenser located in the drying compartment, and temperature control was obtained by use of a small auxiliary condenser actuated by a very sensitive thermostat.

Refrigeration system consisted of a 1½ H.P. condensing uit connected to a spine coil evaporator located in the path of the moisture-laden warm air. Moisture condensed on the low temperature evaporator, with the air passing on through and over the heating coil where it was warmed and recirculated.



The temperature controlled photographic processing sink shown above handles cut or roll film as well as paper prints. Primarily a refrigerating unit, it can be equipped with a heating unit when required.

2. Temperature controlled aerial type film and print processing unit.

This unit is a small, compact, self-contained refrigeration system employing circulating water cooled to 68° to maintain the developing solution temperatures. Water flows around the three solution tanks at a rapid rate and maintains the solutions at the same temperature as the circulating water.

Film is processed by motor-driven reels rolling and unrolling the film while it is in the various solution containers, thus insuring an even application of the solution to all parts of the film surface with a minimum use of space. Photographic prints were processed outside of the main cabinet body in three special double bottom stainless steel trays. Trays contain the various developing solutions and a 68° temperature is maintained by circulating cooled water from the main cabinet through the tray false bottoms. The unit, constructed entirely of stainless steel so as to withstand all types of atmospheric conditions, was widely used by all branches of the Army and Navy.

3. Temperature controlled photographic map and lithography processing unit.

This unit is a self-contained refrigerating system using the circulating water principle of maintaining temperatures. Solutions are placed in large size stainless trays and the cooled water is circulated through false bottoms attached to each tray at a rate sufficient to maintain the solution temperature at the same temperature, as the circulating water. This system consists of a ⅓ H.P. condensing unit, a special water-cooling low side, a ⅛ H.P. water circulating pump together with all necessary valves, controls and fittings. The assembly employs all-stainless-steel

construction, permitting its use under all types of climatic conditions.

This unit was used principally as a part of a complete map processing trailer train although some base operation installations were made.

4. Temperature controlled photoghaphic processing sink.

The photo sink described here is a widely used utility unit capable of handling cut or roll film and also paper prints. It is primarily a refrigerating unit, but can be equipped with a heating unit where operating conditions require it. Temperature controlled circulating water is used to control the temperature of the developing solutions in either tanks or trays. Water circulates through the main compartment of the sink in which are placed the solution containers, thus insuring evenly controlled solution temperatures at all times.

While the use of temperature controlled photo processing equipment has been emphasized by the requirements of war, this application of refrigeration has found its place (an extremely valuable place) in everyday life. The high quality of equipment developed and the knowledge gained, makes it possible to apply it to civilian photographic processing, resulting in a much higher quality photograph at a lower cost.

Development of color photography brings new problems, and again emphasizes the importance of refrigeration. Due to the intricate processes involved in developing color film and prints, extremely accurate control of processing solutions temperatures is essential if high quality prints and negatives are to be obtained. Trend toward color photography is developing rapidly and if this is to continue, facilities must be available for speedy, low cost development of both negatives and prints.

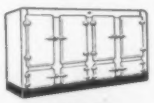
Plans are now under way to establish color processing laboratories in all large communities, so that both the time element and the cost of color processing can be reduced. Naturally refrigeration, in connection with temperature controlling apparatus, will be one of the main elements of these centers.

From all indications, both commercial and amateur photographers are entering a new era where refrigeration will play an important part in adding to their productivity and enjoyment.

WHY EXPERIMENT?

ZEROCEL WILL DO IT BETTER!

INCH for inch, Zerocel is one of the most EFFICIENT insulators for almost every kind of low-temperature insulation. Its properties are perfect for locker plants, home and farm freezer cabinets, domestic and commercial refrigerators and in short, for practically all types of low temperature construction. It has a thermal conductivity (or "K" factor) of only 0.24 Btu. at 60° F. mean temperature.



CABINETS

STORAGE

Zerocel is so ECONOMICAL you can install it much thicker than ordinary insulations for the same or less money. Therefore, you can reduce your refrigeration load (and also the size of your compressor) to the lowest possible minimum. This means savings all around.

LOCKERS

HOME FREEZER

Zerocel is one of the famous GOLD BOND products, well-known all over the world. That's why your appliances and installations will be easier to sell if they bear Gold Bond Zerocel stickers and job signs. They're FREE on request.

ZEROCEL PROPERTIES:

- Completely fireproof
- Will not absorb moisture or odors
- Will not settle
- Immune to fungus, rot decay, and vermin
- Light in weight
- Easy to cut with knife

Zerocel is manufactured to U. S. Dept. of Commerce Standard CS 105-43. Samples and literature on request.

BUILD BETTER WITH GOLD BOND ZEROCEL ROCK WOOL INSULATION

INDUSTRIAL DIVISION, NATIONAL GYPSUM COMPANY
GENERAL OFFICES, BUFFALO 2, NEW YORK
Branch Offices: New York City, Boston, Philadelphia, Washington, D. C. Chicago, St. Louis, Los Angeles, Dallas, Cincinnati, Luckey, Ohio.

Why the Trend Is Strong to CHICAGO SEALS and VALVE PLATES

Chicago Seals and Valve Plates make a better servicing job on all refrigerators, in less time, at less cost, at more profit . . . and more service men and more jobbers are finding out this fact every day.

CHICAGO SEAL CO.
20 North Wacker Drive, Chicago 6, Ill.

THERMOBANK . . .
Continued from page 32

plished by way of the heating coil (H) immersed in the heat-hold liquid, as shown in Figure 5.

During normal operation, the high pressure refrigerant coming from the compressor discharge first passes through the coil (H), heating the brine surrounding it. The refrigerant then proceeds into the condenser in the usual manner. The heat not utilized is dissipated in the condenser. From the condenser the liquid refrigerant is fed through the expansion valve into the evaporator in the usual manner. The refrigerant now evaporates and through the suction line enters the top portion of the inner tank. Since this portion of the inner tank is not immersed in the warm brine, it is relatively cool and does not materially affect the temperature of the refrigerant vapor. The inner tank is so designed that the pressure drop of the suction gas stream is negligible.

As soon as the coat of ice on the evaporating coil reaches a pre-determined thickness, a self-starting clock opens the solenoid valve and stops the fan of the evaporator, thus automaticlly starting the defrost cycle which continues for approximately six minutes, at the end of which the solenoid valve is automatically shut and the refrigerating system resumes normal operation. During defrost, the high pressure refrigerant coming from the compressor discharge is directed into the evaporator, where it condenses. The heat of condensation given off by the refrigerant serves to defrost the evaporating coil. The refrigerant, with a much lower heat content, is now in a liquid state and proceeds through the suction line to the inner tank, where it is re-evaporated. In re-evaporating, a new quantity of heat is gained by the refrigerant which is used for further defrosting. The evaporated refrigerant proceeds through the top of the unit into the suction intake of the compressor. This cycle continues until defrost is complete.

During the defrost cycle, the heat-held liquid in the system is cooled considerably. When normal operation is resumed it is reheated by the heating coil to its original temperature in time for the next defrost cycle. The heat-hold liquid is permanently sealed in the outer tank of the Thermobank so that it never needs to be replenished.

The installation of the Thermobank involves no unusual problems, as can be seen from the photograph of a typical installation in Figure 6. The lowside portion of the system is hooked up in the same manner as a suction line heat exchanger, while

IF one of your customers asked you for advice on where to locate his frozen food cabinet, would you know what to suggest?

Here are some pertinent tips on this subject based on practical, everyday experience of food retailers.

Most merchants prefer to place the case next to the fresh fruit and vegetable department. This juxtaposition of fresh and frozen produce has proven quite satisfactory from the standpoint of frosted food sales. The average customer prefers to buy frosted foods after he has completed his tour of the store, and most produce counters or racks are located near store exits.

Another recommended location for the frosted food case is immediately behind the check-out counter. Here it can be placed in line with an island display, as it does not take up much floor space.

its highside portion connects between the compressor and condenser like an oil separator. The hot gas line is teed off between the compressor and the Thermobank inlet and runs through a service shut-off valve and a standard commercial solenoid valve to the evaporator.

Figure 7 shows the evaporator of this system installed in a locker room of 500 lockers capacity. The evaporator is extremely compact since all defrosting devices are mounted outside the refrigerator. The locker room installation shown in Figures 6 and 7 is served by two evaporators of equal size. Each evaporator is connected to a separate Thermobank and condensing unit. Each system defrosts independently of the other at staggered time settings, thus keeping the temperature rise during defrost to a minimum.

The highside and lowside installation of one of these systems in a –20° F. ice cream hardening room are shown in Figures 8 and 9 respectively. Figures 10 and 11 show an installation in a 28° F. packed pork storage room.

It should be noted from these photographs that the evaporator used with this system is extremely compact, because it eliminates the necessity of water spray, brine spray, or electric heaters. Thus, a maximum of "pay load" in the freezer is made possible. Because the defrost is completely automatic, the system defrosts sufficiently often to keep the coil practically free from ice at all times. The entire refrigerating system therefore operates at a high level of efficiency and economy.

NITROUS oxide, more commonly known as "laughing gas," possesses many new applications as a refrigerant and in producing temperatures for stratosphere chambers as well as shrinking metals, A. I. McFarlan, president of the A. I. McFarlan Co., Inc., refrigerating and air conditioning engineers, declared in a talk before the Compressed Gas Manufacturers Association, Inc. in New York recently.

He emphasized that nitrous oxide is the refrigerant developed for the atomic bomb plant in Oak Ridge, Tenn., and is particularly adaptable for temperatures below 70°F.

Cut!

CALL-BACKS

WITH GRUNOW CARRENE METERS

It is false economy *4 out of 5 times* to install an ordinary dehydrator. Genuine Grunow Meters have *built-in* dehydrator cans. Single seal of brazed phosphorous copper. Entire meter flow-tested. 50,000 in past five years. Satisfy your customers on the first call and have extra time for *increased* service profits!

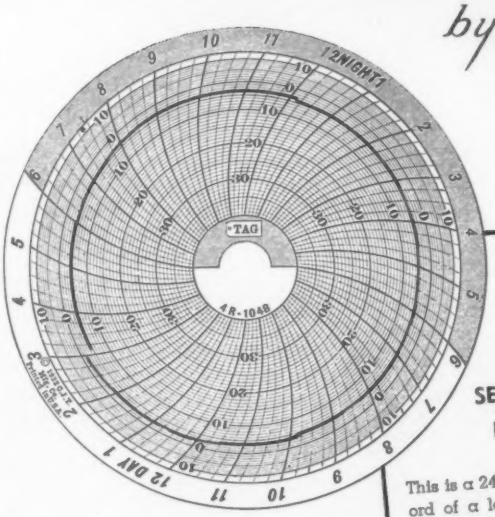
Grunow

AUTHORIZED SERVICE, INC.

4321 W. Fullerton Avenue, Chicago, Illinois

THERMOBANK

by KRAMER



UNIFORM TEMPERATURE IN A SELF-DEFROSTING LOCKER ROOM

This is a 24 hour temperature record of a locker storage room of 500 locker capacity. Two compressors with two THERMOBANKS defrost independently at staggered time settings, giving minimum temperature fluctuations.

The contracting firm was the Refrigeration Corporation of America, 241 W. 64th Street, New York, N. Y.

WITH the THERMOBANK a zero degree system is just as automatic as a 40 degree system, in fact more so.

It never needs to be defrosted because it defrosts itself automatically without the use of brine sprays, water sprays or electric heaters.

Write for Bulletin TV345-RI

KRAMER TRENTON CO., *Trenton, New Jersey*

TOPS! for LOW TEMPERATURE

DOLE Vacuum COLD PLATES

Maximum Refrigeration Efficiency

for all REFRIGERATION PURPOSES

Investigate . . . . then you will specify . . . . DOLE Vacuum Cold Plate Evaporators for maximum refrigeration efficiency.

See your Refrigeration Dealer

Dole Refrigerating Company

5910 N. Pulaski Rd., CHICAGO 30, ILL.

New York Branch:

103 Park Avenue, New York 17, N. Y.

SOMETHING FOR NOTHING. . .

Continued from page 29

admittance to a home, the way is paved for limitless sales opportunities.

A popular belt installation service, introduced during the war by the Appliance Service Co., had its inception because Mr. Galvin foresaw the sales advantages which would accrue from such a service. Installation of new belts on domestic units is handled for an average charge of $3.50, but the men doing this work are ordered to throw in other services. Condensers are cleaned, motors oiled, and a brisk polishing given the boxes, all without charge.

Like most other refrigeration firms, Mr. Galvin's organization was forced, through wartime shortages of products, to lay primary stress on servicing during the past few years. Nonetheless the company did chalk up a sales average of 10 used refrigerators a month during the war years, and also has 10 boxes out on rental at $5 per month.

Primarily a domestic refrigeration repair firm, although there are a number of drugstores and groceries on Galvin service lists, the firm attained a wartime service record of seventy-five household machines repaired per month.

Majority of the users of commercial equipment serviced by the firm will be in the market for new machines, Mr. Galvin believes, but it is the home owners that he really counts on as being most vulnerable to the sales arguments to be applied by his son and his assistants.

REFRIGER-AGING . . .

Continued from page 42

left in that position for from 45 minutes to an hour. At the end of that time, the sediment in the neck is solidly frozen, and the foreman or any of several girls employed in the department can remove it. This is done by pointing the neck of the bottle into a cup-shaped barrel equipped with a drain, and using a leverage tool to jerk out the cork. Some champagne gushes out after it, but since a thin frozen layer remains below the neck, only 5% or so is lost, instead of the 35 to 50% loss normally incurred in opening champagne bottles at room temperatures.

Roma maintains a refrigeration laboratory constantly seeking to apply various forms of refrigeration to wine making. These two developments are among the most outstanding of a dozen with which it has experimented in the last five years.

STANGARD

Prime Surface

COLD PLATES

For Maximum Refrigerating Efficiency

THE STANGARD-DICKERSON CORP.

46-76 Oliver Street · Newark 5, N. J.

STANGARD KNOWS REFRIGERATION

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MANN REFRIGERATOR ADDS FLEETWOOD LINE

Mann Refrigerator & Supply Co., New York City, has been appointed factory representative and distributor for the complete line of Fleetwood commercial refrigeration products, according to Sol Haar of the Mann organization. The franchise covers all boroughs in New York City, as well as Westchester, Nassau, and Suffolk counties.

APPLIANCE GROUP HELPS BACK HOME SHOW

Southern California Radio & Electrical Association is joining with 13 other trade associations in co-sponsoring the first annual Southern California Construction Industries Exposition & Home Show to be held in the Pan Pacific Auditorium, Los Angeles, July 12 to 21.

SCHOLL LEAVES BRUNNER; ANNOUNCES NO PLANS

B. J. (Ben) Scholl has resigned as sales manager of the Brunner Mfg. Co., Utica, N. Y. He has not yet announced any future plans.

Mr. Scholl has been associated with the Brunner organization in various capacities for over 28 years, and has been sales manager since 1936.

He is well known in both the refrigeration and air compressor industries. During the war he was selected to serve as a member on WPB and OPA advisory committees for both of these industries.

He is a past president of the Standard Refrigeration Compressor Association, and is at present a member of the board of directors of the Refrigeration Equipment Manufacturers Association, and chairman of the Refrigeration Condensing Unit Manufacturers Association. He is also an Associate Member of the American Society of Refrigeration Engineers.

PELCO LISTS OUTLETS FOR HOME FREEZERS

The refrigeration division of Portable Elevator Mfg. Co., Bloomington, Ill., has recently issued a roster of its "Freez-All" home freezer distributors. The list follows:

James-Stevens Co., Albany, Ga.; Graybar Electric Co., Asheville, N. C.; Associated Distributing Co., Atlanta; Maine Industries, Bangor, Me.; Kelley-How-Thomson Co., Billings, Mont.; Foster Supply Co., Buffalo; Graybar Electric Co., Charlotte, N. C.; Bryant & Trimble Co., Chattanooga, Tenn.; Wakem & Whipple, Inc., Chicago; Perchan & Co., Cleveland; Associated Distributing Co., Columbia, S. C.

Smith-Perry Electric Co., Dallas; Robert F. Clark Co., Denver; Midwest Home Appliance Distributors, Detroit; Kelley-How-Thomson Co., Duluth, Minn.; Graybar Electric Co., Durham, N. C.; Wise Radio Supply Co., Fort Smith, Ark.; Schlatter Hardware Co., Fort Wayne, Ind.; The Mart, Inc., Fort Worth, Tex.; Independent Distributors, Grand Rapids, Mich.; Edwin Flato Co., Houston, Tex.; Associated Distributors, Indianapolis.

United Distributors, Jackson, Miss.; Florida Radio & Appliance Corp., Jacksonville; Bryant & Trimble Co., Knoxville, Tenn.; Korsmeyer Co., Lincoln, Neb.; Kentworth Corp., Louisville, Ky.; Associated Distributors, Madison, Wis.; Graybar Electric Co., Manchester, N. H.; Wayne Spinks Co., Inc., Memphis.

Florida Radio & Appliance Corp., Miami; Wayne Spinks Co., Inc., Nashville, Tenn.; United Distributors, New Orleans; Graybar Electric Co., Norfolk, Va.; Rye Auto Supply Co., North Little Rock, Ark.; Superior Distributing Co., Oklahoma City; Lewis Bear Co., Inc., Pensacola, Fla.

Isaac Walker Hardware Co., Peoria, Ill.; Radio Specialties Co., Phoenix, Ariz.; Graybar Electric Co., Richmond, Va., and Roanoke, Va.; Interstate Supply Co., St. Louis; Kelley-How-Thomson, St. Paul; Alamo Distributing Co., San Antonio, Tex.

Harry C. Glou Co., Scranton, Pa.; Cloud Brothers, South Bend, Ind.; Graybar Electric Co., Springfield, Mass.; Florida Radio & Appliance Co., Tampa; Kold-Draft Toledo Co., Toledo; The Keller Co., Trenton, N. J.; Graybar Electric Co., Winston-Salem, N. C. and Worcester, Mass.

The well-insulated gentleman in the woolen helmet and gloves is about to enter the quick freezing room of the Maxson Food System plant at Queens Village, N. Y. with racks of partially pre-cooked complete meals assembled on cardboard plates and sealed in specially treated envelopes for freezing and storage.

NEW $50,000 HOME FOR K. C. CONTRACTOR

Arcticaire Refrigeration Co., Kansas City, Mo., commercial refrigeration and air conditioning company, has begun construction of a new shop and sales building at Mill Creek Parkway and Archibald St. Designed to prefabricate large-scale refrigeration and conditioning equipment before installation, as well as to service and repair compressors and controls, the new building will cost close to $50,000, according to Ted Rostock, president of the firm. The company is now temporarily located at 3615 Broadway. Along with engineered refrigeration and air conditioning, the new building will handle appliances, room coolers, and specialized refrigeration for product manufacturers.

YORK '25-YEAR CLUB' NOW NUMBERS 575

Membership in the "Twenty-Five Year Club" of York Corp. has reached an all-time high of 575, or about one eighth of all the corporation's employees.

Nearly 500 members of the club were guests of the company at its sixteenth annual banquet to share in the initiation of 43 new members, all with 25 years of continuous service with the firm.

L. S. Morse, the corporation's executive engineer, became the fifth employee to reach the half-century mark in continuous service.

During his career, he has been a member of the American Society of Refrigerating Engineers, of which he was president in 1936, the Air Conditioning and Refrigerating Manufacturers Association, the American Society of Mechanical Engineers, the American Welding Society, the National Electrical Manufacturers Association, and was formerly president of the Technology Club of Central Pennsylvania.

DAYTON FIRM PRODUCES PRECISION RUBBER PARTS

Mechanical rubber parts held to extremely close tolerances and an engineering service aimed at assisting users of such equipment in designing parts to fit their requirements are offered by Plastic & Rubber Products, Inc., Dayton, Ohio.

The Dayton plant was built during the war especially for the production of "O" ring seals and carburetor parts which required tolerances to be maintained as close as plus or minus .0015 of an inch. It features production of "O" ring seals under patents held by Nels A. Christensen of South Euclid, Ohio.

The Dayton firm is affiliated with a company of the same name in Los Angeles, Calif.

NEW OFFICES FOR MORTON

Morton Show Case Co., commercial refrigeration sales organization with headquarters in Dayton, Ohio, has moved its main office into a new location at Main and Franklin Sts. in Dayton. The company also maintains stores and warehouses in Columbus, Lima, and Springfield, Ohio.

There's an Aerovox exact-duplicate or universal replacement for every motor-starting capacitor.

●

Aerovox listings help you select the proper replacement type for any standard capacitor-type refrigerator motor.

●

The Aerovox jobber or supplier carries a stock for your convenience. Ask for latest catalog. Or write us direct.

AEROVOX capacitors

FOR RADIO-ELECTRONIC AND INDUSTRIAL APPLICATIONS

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Export: 13 E. 40th St., New York 16, N.Y. • Cable: 'ARLAB'
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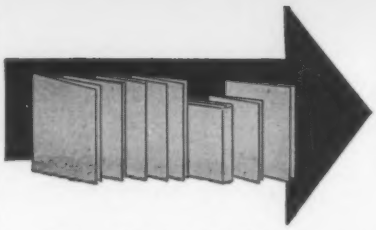


Useful Literature

The publications listed below are available to readers without charge. Simply list on the postcard provided in this issue the numbers of the items you wish to receive, and send it to THE REFRIGERATION INDUSTRY, 1240 Ontario Street, Cleveland 13, Ohio. Your requests will then be forwarded directly to the companies concerned.

262—Refrigeration Sludge . . . A bulletin containing a detailed analysis of the refrigeration sludge problem, describing types of sludge, outlining causes, and recommending preventive measures. Available from Ansul Chemical Co.

263—Tools . . . A catalog showing and describing the complete line of Bonney "Balanced Design" tools for all types of refrigeration work. Available from Bonney Forge & Tool Works.

264—Line Filters . . . Literature issued by Mueller Brass Co. describing its Model A-13661 line filter.

265—Air Coolers . . . Two bulletins offered by American Coils Co. One (No. AC-2) described the "Corfortaire" package conditioner. The other contains information on the company's line of "Two-Way" ceiling-mounted cooling units.

266—Electric Handtool . . . A 16-page booklet entitled "Facts and Figures" and containing full details about the "Precise 35" electrical handtool and its many attachments. Available from Precise Products Co.

267——Commercial and Industrial Refrigeration . . . Bulletin 80-B of the Frick Co. detailing and illustrating the varied applications of this company's line of refrigeration equipment. Includes several useful refrigeration tables and data on weights and measures.

268—Humidifying Equipment . . . A catalog (No. 22) giving detailed information on humidifying systems, nozzles, and related equipment. Available from Spraying Systems Co.

269—Gears . . . A four-page illustrated bulletin issued by Abart Gear & Machine Co. describing its line of precision-cut gears and speed reducers.

270—Air Conditioning Systems . . . A 40-page catalog in color produced by Carrier Corp. and titled "Air Conditioning for Multi-Room Buildings." Cites advantages of air conditioning for different types of building and institutions, and illustrates with both photographs and charts the application of five Carrier systems of air conditioning.

271—Tubing . . . Catalog listing cold drawn seamless and welded tubing in five different metals. Available from Agaloy Tubing Co.

272—Refrigeration Equipment . . . Four bulletins (E, F, G, and H 42) giving specifications and descriptions of the principal air conditioning and refrigeration products produced by Refrigeration Economics Co., Inc., including air conditioning units, evaporative condensers, banana room conditioners, and oil and liquid cooling units.

273—Leather Packings . . . A booklet offering 12 pointers on the selection and application of leather packings of cup, flange, U, and Vee types. Available from the packings department of Graton & Knight Co.

274—Chemical Products . . . A 28-page booklet describing a number of chemical processes and materials developed for use in the aircraft industry but now applicable to other industrial fields. Illustrations include a dozen full-color 8 x 11-inch photographs of various Army and Navy planes. Available from Turco Products, Inc.

275—Ceramic Products . . . A booklet describing and illustrating ceramic products for electrical appliance insulation and many other applications. Available from Stupakoff Ceramic & Mfg. Co.

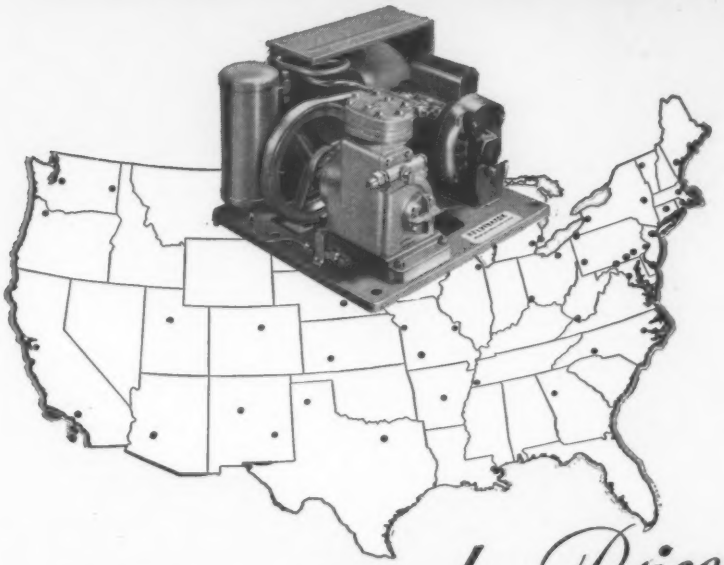
INTERCHEMICAL MERGES FINISHES UNITS

Consolidation of Ault & Wiborg Division of Interchemical Corp. and Murphy Finishes Corp., an Interchemical subsidiary, has been effected, and the revamped organization will continue operations as Interchemical Corp., Finishes Division, according to an announcement by Joseph R. Esposito and Charles J. Roh, respective heads of the two units.

Both of the merged firms are old-line manufacturers of enamels, lacquers, paints, varnishes, and other finishes. Ault & Wiborg, established in 1878, has been a member of the Interchemical group since 1928. Late in 1944 Murphy Finishes Corp. acquired the assets and business of Murphy Varnish Co., which dates its experience back to 1866.

Industrial products formerly sold under the Ault & Wiborg and Murphy names will now be marketed as Interchemical products. The Murphy brand name and trade mark will be continued for consumer products.

KELVINATOR CONDENSING UNITS AND REFRIGERATION SUPPLIES



NOW *Competitively Priced* AND *Conveniently Warehoused*

Refrigeration service organization and independent service men know from past experience that they can depend on Kelvinator Parts Depots for fast service on their requirements of parts, supplies and complete condensing units. Now Kelvinator's warehousing system and distribution facilities . . . established at 50 strategic distributor and branch points throughout the country . . . make Kelvinator parts and supplies and complete Kelvinator Condensing Units more widely available than ever before. NASH-KELVINATOR CORPORATION, Detroit.

BUY KELVINATOR FOR YOUR COMMERCIAL REFRIGERATION REQUIREMENTS

Kelvinator

CONDENSING UNITS OPEN AND SEALED

"Let's share our knowledge—exchange our experience"

Here's how

Edited by
Warren W. Farr

Adding Oil to Coldspots

Supplementing the series of articles on the servicing of Coldspot units, by Elmer H. Wiedwald, which appeared in our issues of May and June, 1945, is the following suggestion submitted by Emmitt H. Bunch, Jackson, Mich. Mr. Bunch writes:

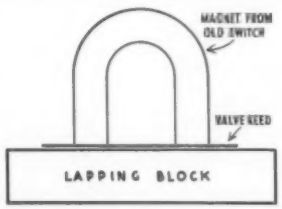
"We have found that a good many Coldspot units that run don't refrigerate due to lack of oil in the rotary type compressor. When it is low on oil, the machine won't pump, which makes it difficult to get oil into the unit.

"To overcome this problem, we take a 5-lb. drum, fill it about half full of refrigerator oil, and then add about 1 lb. of sulphur dioxide refrigerant to that; we heat the tank slightly, and then up-end it. Pressure from the sulphur will force oil into the compressor, and it will start to pump.

"After it has pulled down to vacuum, add a small amount of oil from the same drum. We find that this method saves us a lot of time."

That's a swell suggestion, Mr. Bunch, and thanks a lot for giving us the benefit of it. There's only one additional point we'd like to mention: after adding the oil by this method, great care should be taken to see that the refrigerant and oil charge in the unit are in proper proportion. This will assure continued satisfactory operation of the equipment.

HERE is a method which I use to lap in valve reeds in my service shop. As can be seen from the accompanying sketch, I use a magnet from an old switch. Of course, this is an emergency measure with me, in case I am not able to obtain new valve reeds, and need to replace one in a hurry. It is always good practice to get new reeds whenever possible, but this has helped me out a lot when I wasn't able to do so.



Joe Gerson, Jackson, Tenn.

WE FIND that a short copper tube soldered in at a 90 degree angle on our blow gun makes a perfect syphon for cleaning solvent or carbon tetrachloride to form a fine mist under pressure for cleaning parts and motors.

H. Dunn, Pinehurst, Idaho

Recharging High Side Float Systems in Field

Many times it is necessary to discharge a high side float mechanism in the field, and after repairs have been made, to re-charge the system. The normal high side float is inherently sensitive to the proper charge of refrigerant, and the amount should be weighed accurately when the system is re-charged.

In most cases the service man does not have a scale in his tool kit, and charging a high side float, under conditions like these, can develop into a long drawn out process of trial and error. The following method, although not infallible, has worked out very well for one veteran service man of our acquaintance:

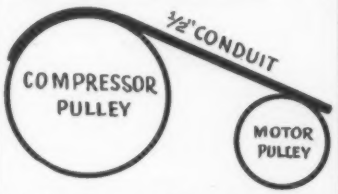
Crack the flare nut on the suction service valve, and pour refrigerant through the high side gauge opening. When enough refrigerant is in the system, the float valve will lift, and refrigerant will blow through the flare nut. Then lighten the flare nut and

FIVE DOLLARS REWARD

WILL BE paid by THE REFRIGERATION INDUSTRY for any information on installation or servicing procedures and shortcuts accepted for publication in HERE'S HOW, The Service Man's Department.

Send your suggestions on shop equipment and methods, tools, or other ideas to HERE'S HOW EDITOR, c/o THE REFRIGERATION INDUSTRY, 812 Huron Rd., Cleveland 15, Ohio.

I FOUND it difficult to align the belt and pulleys on several household jobs, so I made a tool to do this. I took a piece of regular ½" conduit about 24" long, and on one end I made a 90° bend with a regular ½" conduit bender. By placing the curved part in the flywheel on the compressor and letting the long part fall into the motor pulley, I find they line up perfectly.

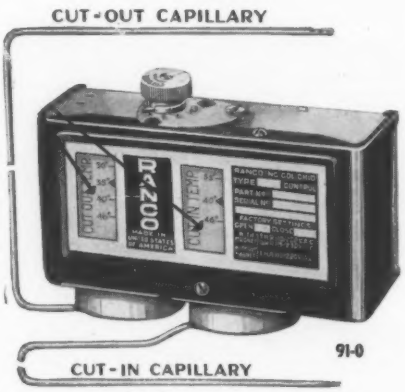


I find also that this fits 90% of the domestic-type compressor pulleys, and almost every shop has a few pieces of ½" conduit lying around.

Burton Diamond, Idaho Falls, Idaho.

FROM "MAN IN THE SERVICE" . .

. . . TO SERVICE MAN —



Type 91-0 Interlocking Two-temperature control.
For single or multiple unit systems.
For natural or forced convection units.
For better preservation of perishables.

Many of the boys are returning—former refrigeration engineers and those that plan to follow this work. Ranco is glad to know that Ranco Domestic and Commercial Refrigeration Controls are selected by many of the returning veterans as they change from "Man in the Service" to "Service Man." We like to think that many learned the unusual advantages of Ranco Controls while in the Service.

Welcome back—your Ranco Jobber and ourselves are ready to help any way we can.

SEE YOUR RANCO JOBBER

Ranco Inc.

COLUMBUS 1, OHIO

shut off the charging tank.

Generally it will be found that the system is adequately purged and the proper amount of refrigerant is in the system. The suction service valve should be closed before pouring the refrigerant. If the charge is not right, it will be found that the amount of refrigerant to be added or purged is very small.

Diagnosing Complaints on Water Coolers

Complaint: Cooler will not run.

Correction:

a. Check the fuses and the power source to see if you have electricity to the unit.

b. Faulty control. Check the control; if it does not operate, replace it.

c. Capacitor open or shorted. If a check shows the capacitor to be open or shorted, replace the capacitator.

d. Thermostat open. Check the thermostat; if it is open, replace it.

e. Transformer open-circuited. If a check shows the transformer to be open-circuited, replace it.

WHEN making a flanged joint directly after making a sharp bend in the tubing, I usually experienced the difficulty of the flare nut being tight on the tubing due to the tubing flattening to a small extent.

To remedy this, I take a crescent wrench, adjust it to the proper size that the tubing should be, then turn it around the bent part of the tubing several times. You will find this will restore the tubing to its original roundness, and the flare nut will slide on freely.

Leslie R. Hunter, Grayling, Mich.

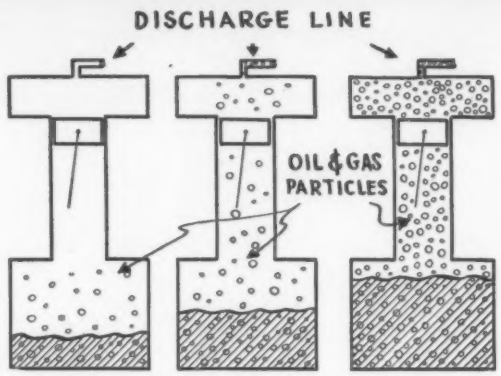
Coming Trends in Air Conditioning

A paragraph in a recent issue of *Collier's* asserts that individually controlled year-around air conditioning for every room in an office building or hotel will soon set new standards of convenience and efficiency. By turning a small pointer to the temperature you want, you'll be able to get it, winter or summer.

Instead of flowing through large ducts, as at present, the conditioned air will be blown at high speed *through small pipes*, the article asserts, and delivered to units resembling radiators, placed under the windows of the room. This "mixing unit" will be the heart of the system.

According to the description, air blown into the unit from the main supply pipe first passes through a series of nozzles, sucking in several times its own volume of room air from the floor level. The mixed air, after passing over the coils, is then circulated through the room.

While not brand-new (one such installation is in the new Statler Hotel, Washington, D. C.) the system described has interesting possibilities. For one thing, it helps solve one major problem—the saving of internal wall space. For another, it obviates the necessity of using large sheet-metal ducts, which in some cases has retarded acceptance of air conditioning in large installations, especially where solid masonry walls exist. It is a pretty good bet that systems patterned after this principle will find increased acceptance.



CHARGING COMPRESSORS WITH OIL IN THE FIELD

MANY service men are confronted with the problem of charging compressors with oil. There is little information available as to the proper charge of oil required. This applies to later day as well as obsolete compressors. To offset this lack of information, the writer has worked out a simple and successful method.

In a compressor that is properly charged with oil, if the service suction valve should be suddenly turned in, the compressor will start to slug oil almost immediately. It is this principle that determines the amount of oil that is in the compressor. As is well known, the oil mixes with the refrigerant in the base of a compressor and when the suction service valve is turned in, the refrigerant, due to a sudden lowering of the back pressure, starts to boil violently, throwing some of the oil upward—higher than usual, past the valves of the compressor, creating the slugging noise. In an SO2 job, the normal back pressure averages 6″ to 8″ vacuum (household) and when the service suction valve is turned in, the compressor will start slugging at about 15″ of vacuum. If the compressor does not slug oil at this point, it is definitely low on oil, and oil should be added until it does start to slug. The same procedure takes place with methyl chloride and Freon systems. However, methyl chloride, having an average back pressure of 6 lbs. (household) should start slugging oil between 0 lbs. to 4″ of vacuum. Freon, averaging about 12 lbs. back pressure (household) should start slugging oil at about 0 lbs. gauge pressure.

Should the compressor be overcharged with oil, a simple method of removing oil can be used. Stop machine and turn in suction service valve. Install purge line on high side service valve and run into jar. Run in high side service valve and start machine, and oil will purge into jar. The service man should be prepared to stop machine at a moment's notice should the slugging become violent.

From the accompanying diagrams, it can readily be seen what happens when the low side service valve is turned in. Figure "A" shows a compressor low on oil; "B" shows a compressor properly filled with oil, and "C" shows a compressor overcharged with oil.

Murray Eisenberg, New York, N. Y.

Editor's Note: The above method of checking oil is presented because one service engineer has used it successfully for a period of time. An equally practical method would be to remove the oil filter plug and check the actual oil level, and then add oil accordingly.

Looking for Trouble: No. 4—Frosted Suction Line

When you have the suction line frosted, here are some possible causes to check:

1. Expansion valve bulb loose.
2. Bulb in a warm air stream—not properly insulated.
3. Expansion valve sticks open.
4. Expansion valve adjustment incorrect.

Says GASKET JOE

COMPRESSORS FIXED,
THE SEALS ARE TIGHT,
ANOTHER BOX IS
ALMOST RIGHT.
AND YET, MY FRIENDS,
THERE'S SOMETHING MORE.
BEFORE YOU'RE SURE
YOUR JOB IS PAT
YOU'VE GOT TO TAKE A
GANDER AT
THE GASKET
ON THE
COOLER
DOOR.

JARROW PRODUCTS
420 N. LA SALLE ST., CHICAGO 10, ILLINOIS

COIL CLEANER
for
Water Cooled Equipment

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PRACTICAL
Releases stuck compressors
Quickly . . . Fast Action
on water scale

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ECONOMICAL
Can be reused many times
or diluted when necessary

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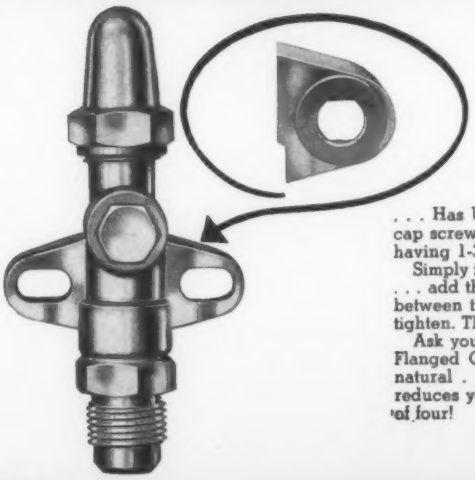
APPLICATION
easy without
Special Equipment

Write for Literature
or
Call your Local Jobber

SKASOL CORPORATION
Webster Groves 19, Missouri

Another SUPERIOR FIRST

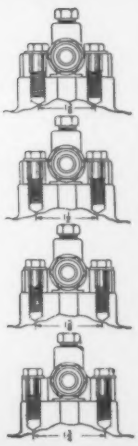


The "UNI-HOLE" Flanged
Compressor Valve

. . . Has Universal bolt holes for use with 5/16" bolts or cap screws, to facilitate installation on compressor flanges having 1-3/8", 1-1/2", 1-5/8", or 1-3/4" centers.

Simply install the "Uni-Hole" Valve in its proper position . . . add the two heavy washers (supplied with each valve) between the flange and bolt, or cap screw head . . . then tighten. That's all there is to it!

Ask your Jobber to show you the SUPERIOR "Uni-Hole" Flanged Compressor Valve. You're sure to like it! It's a natural . . . and besides saving you installation time, it reduces your stocking problem. *One size does* the work of four!



The diagrams at the right tell the story.

NO. 132

SUPERIOR VALVE & FITTINGS COMPANY
PITTSBURGH 26, PENNSYLVANIA

OFFICES IN PRINCIPAL CITIES • STOCKS: CHICAGO (6) • LOS ANGELES (15) • JOBBERS EVERYWHERE

SODA FOUNTAINS . . .
Continued from page 39

above the syrup jars on the back side of the syrup rail. This ice wall is maintained frozen by a loop exaporator which is submerged in a plain water trough. The expansion of the refrigerant freezes the water to ice and it remains in this condition throughout the normal operation of the fountain. This ice not only maintains proper syrup rail and syrup temperatures, but also provides a holdover effect.

Refrigerant flow through the syrup rail evaporator is controlled by a non-adjustable TEVF206 expansion valve (orifice "H") while the temperature is controlled by a retarder valve installed in the suction from the rail. Both the expansion valve and retarder are located at the rear of the dry storage compartment. (See Figure 12).

A retarder valve is a spring loaded device which will keep the evaporator to which it is attached at a fixed differential of pressure above the common suction line pressure.

Two types of retarder valves have been used on Coldsleeve fountains: the non-adjustable type No. PR8F12 and the adjustable type No. 795. The two types are distinguishable, since the former has one cap nut while the last has two nuts, the second capping the adjusting stem.

Do not loosen or remove the cap nut on the *non*-adjustable retarder unless the entire system has been pumped down for it opens directly into the evaporator.

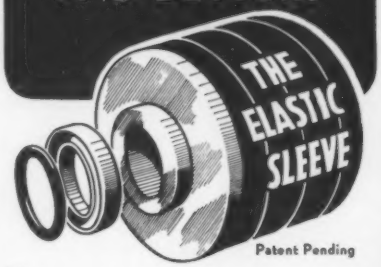
The adjustable retarder, however, may be adjusted if required. To raise the temperature of the syrup rail, close off on the retarder adjustment by turning the adjusting stem clockwise (raising the evaporating pressure in the rail). If the rail is not cold enough (not forming ice in the trough) turn the adjusting stem counter-clockwise (opening the valve).

The syrup rail itself is operated dry, and a recessed section in the bottom front side serves as the drain for the drip plate and to carry away any condensation.

Check Valve. A ½" check valve is installed in the suction line from the ice cream section and located in the control service panel. This valve prevents the warmer refrigerant vapor from the water cooling evaporator

PARTNERS IN PURPOSE
. . . to keep refrigeration systems at the height of efficiency
HIGHSIDE CHEMICALS CO.
195 VERONA AVE. NEWARK 4, N. J.

COMPARISON WILL PROVE IT'S BETTER!



"The Seal of Approval"

Write for Stock and Price List. Learn how you can save by eliminating "call backs".

TEMPERATURE *Control Devices*
NEW HAVEN 15, CONNECTICUT

from condensing in the ice cream section during the "off" cycle of the condensing unit.

Heat Exchanger. Suction lines from the ice cream section, water cooling section and syrup rail are tee'd together and all the cold refrigerant suction vapor passes through a loop heat exchanger counter-flow to the incoming warmer liquid refrigerant. This exchanger is approximately 8' long and located between the upper and lower service panels. It serves effectively to cool the incoming liquid refrigerant as well as reducing the tendency of the suction line to frost or sweat at most efficient expansion valve minimum superheat settings.

WHAT is perhaps the largest refrigerated showcase in existence has been set up by The Fair store in Chicago in its remodeled food shop. This refrigerated unit, now attracting thousands of customers, boasts 248 feet of show cases and contains room for five tons of meat, poultry, cold cuts, and fish, and for some 4,000 pounds of cheeses. Mirrors are used to provide unusual display effects.

Refrigerant Charge. Direct expansion 'Coldsleeve" soda fountains are shipped dry. Refrigerant and oil must be added to the system at the time of installation by *whoever supplies the condensing unit.* The approximate amount of F-12 refrigerant for the water cooling section is 3½ lbs., while the charge for the ice cream section should be determined on the basis of 2 lbs. per ice cream sleeve. In addition, add 1 lb. for each 10 ft. ⅜" liquid line. It is most important that refrigerant oil is added to each hook-up at the time of installation in the ration of 1 lb. (1 pint) of oil for each 10 lbs. of F-12 refrigerant added to the system.

"Coldsleeve" soda fountains must be used *only* with F-12 refrigerant and F-12 condensing units. The fountain is equipped with all valves and controls for F-12.

Refrigerant Lines. Connections for the condensing unit refrigeration lines are made to the heat exchanger at the front of the unit at the lower panel. Flare connectors are provided for ⅜" liquid and ⅝" suction lines and these sizes must be run to the condensing unit for most efficient operation.

Permanent silica gel dehydrators

DAVISON'S *refrigeration grade* SILICA GEL

- Assures maximum capacity
- Instantaneous action
- Prevention of channeling
- Removal of acids, corrosive compounds
- Freedom from caking or powdering
- Complies with requirements of Joint Army-Navy Specification Jan-D-196-Grade A Type II for Desiccants (Activated)

America's progressive refrigeration engineers have been standardizing on Davison's Refrigeration Grade Silica Gel for trouble-free performance ever since Davison's engineers consulted with refrigeration men... then went out and licked the problem of creating a fool-proof drying agent.

Your jobber will supply you with Davison's Refrigeration Grade Silica Gel in factory-charged dehydrators or for refill. Always say, "DAVISON'S Refrigeration Grade SILICA GEL!"

THE DAVISON CHEMICAL CORPORATION
Progress through Chemistry
BALTIMORE-3, MD.

Canadian exclusive sales agents for DAVISON'S SILICA GEL:
CANADIAN INDUSTRIES LIMITED, General Chemicals Division

should be used on all F-12 installations and installed vertically in the liquid line at the condensing unit to prevent the possibility of operating difficulty from moisture in the system.

A liquid line indicator (sight glass) should also be installed on the *outlet* side of the dehydrator, to facilitate checking initial charge as well as diagnosing service troubles and particularly refrigerant shortage.

Condensing Unit Control. A White-Rodgers No. 1609, 8′ capillary (or No. 1620), single temperature control is supplied with each Coldsleeve fountain. The control bulb is inserted in a well attached to the ice cream sleeve. This single temperature switch will control the entire fountain except on heavy water load installations. For heavy water load installations, use a dual control hook-up consisting of a temperature control and a low pressure control connected in electrical parallel.

Approximate setting on the temperature control switch is 0° cut-out and plus 6° cut-in (6° differential). The settings will depend on the characteristics of the particular manufacturer's ice cream.

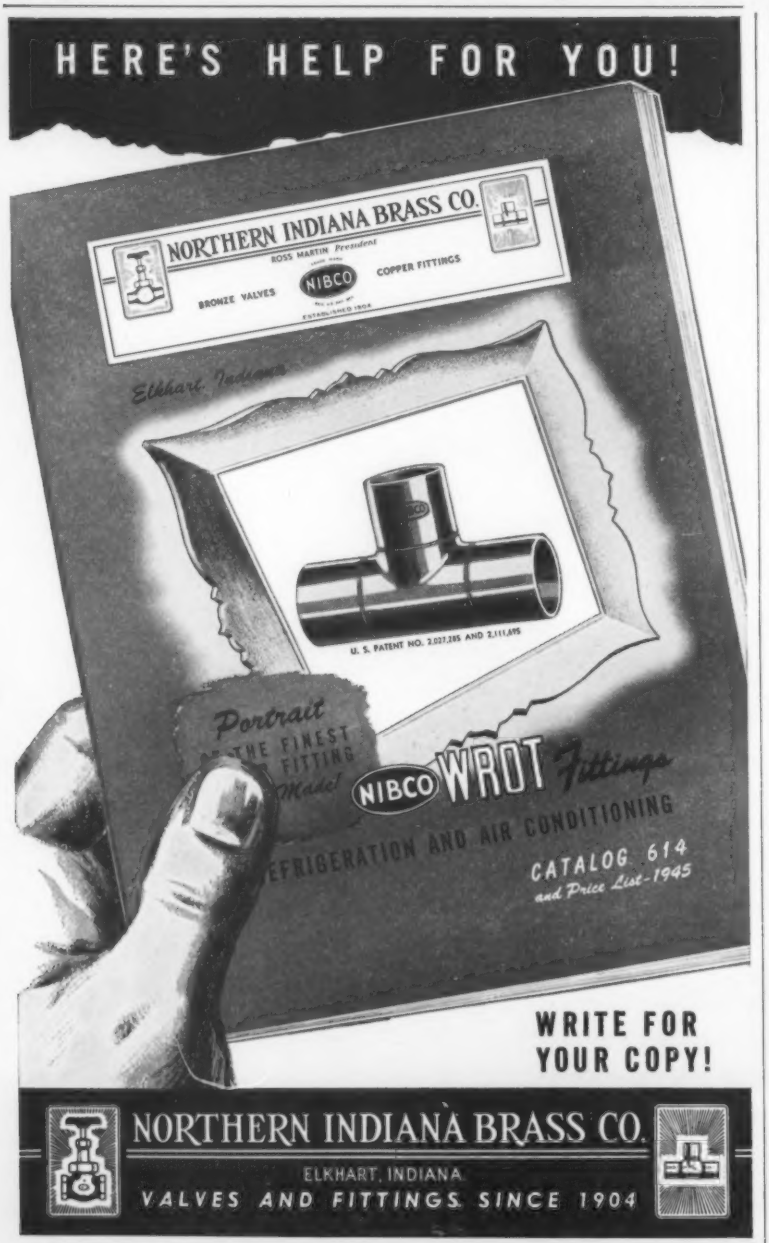
Start-Up. "Coldsleeve" soda fountains will require approximately 5 hours for the initial pull-down.

Start up the condensing unit connected to these soda fountains with the syrup rail trough and water cooling compartment DRY. Permit the condensing unit to operate on the soda fountain for approximately 1 hour under these conditions, and then add cold water to the water cooling section and syrup rail refrigerating trough. By starting up the system this way, the starting-up load on the condensing unit will be decreased, and the initial pull-down time appreciably shortened.

Adjustments. In general, it will not be necessary to make any adjustments at the time of start-up on the expansion valves for they are factory set. It will however, be necessary to adjust the temperature control to the requirements of the particular ice cream stored. The approximate setting on the TRV-20 valve will be at 2½, but it may be necessary to readjust it slightly depending on the water load conditions. In general, light water load locations will require a warmer setting to prevent excessive icing.

"Don't bother getting the refrigerator repaired until we get the furnace fixed."

Shortage of Refrigerant. Refrigerant shortage on the "Coldsleeve" fountain will show up first in the water cooling section. If short of refrigerant the ice formation on the evaporator will thin out at the midsection (end of the water cooling circuit), with the amount of ice from the mid-section to the bottom depending on the extent of the shortage. The same result may be caused by a plugged water cooling section thermostatic expansion valve, valve not



open wide enough, (due to either adjustment or lost thermostatic charge), or TRV set too warm.

Circulator. A circulator and a W-R No. 1671 (6′ capillary) thermostatic circulator control was supplied on the first "Coldsleeve" fountains. The bulb of the control was located in the bottom of the water cooling bath in a bulb well. This switch has a fixed non-adjustable 2° differential and the dial should be set at 36° (cut-out).

Late 1941 and early 1942 fountains were equipped with a small continuous operating circulator motor, eliminating the necessity of the thermostatic circulator control. The circulator, through agitating the water bath, substantially increases the cooling capacity of the water cooling section.

The circulator motor plugs into a 110 volt outlet socket on the top under side of the dry storage compartment. Its operation is entirely independent from the refrigeration system and condensing unit.

NEW SCHAEFER OUTLET

The M & M Co., Cleveland, has been appointed distributor of Schaefer "Pak-A-Way" freezers.

Commercial Refrigeration DISTRIBUTORS!

EXCLUSIVE FRANCHISE AVAILABLE to a few accounts having show room and facilities to sell bottlers at wholesale and direct users at retail.

AUTO-MATIC Merchandising is the Coming Industry!

"GENERAL" automatic bottle vending machines introduce "Elevator Action"—a new principle in bottle dispensers.

- adaptable to various sizes of bottles from 6 to 12 ounces (also beer)
- two models—single and two flavors
- 18 patent claims pending
- capacities from 192 to 338 bottles
- manufactured by 38 year old company
- deliveries latter part of April

Distributor carries no stock—only 4 display models. We finance all bottlers' time sale paper without liability to distributor. Only 50 to 75 franchises in entire country. Some locations still available. Send outline of your organization and operation and write for details to—

E. A. Terhune—General Manager

General Vending Machine Corporation

549 W. Washington Blvd., Chicago 6, Ill.

DRIER THAN DRY . . .

Continued from page 35

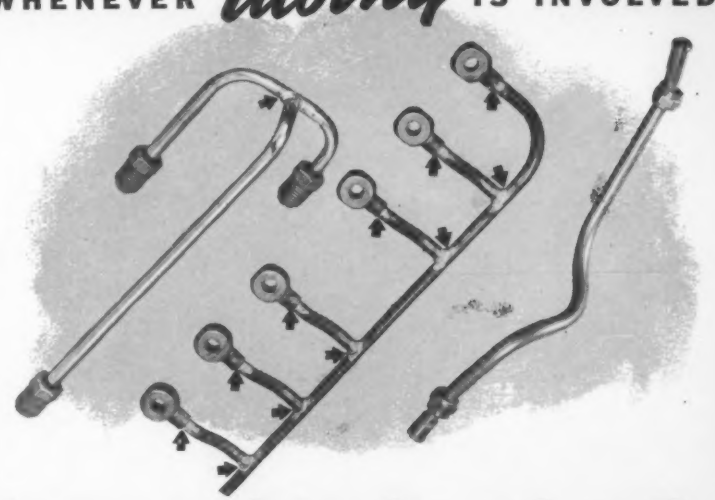
into a dehydration chamber; all of the oil to be used in the charging operation is treated in this manner. The oil is recirculated enough times to completely dehydrate and degasify it (in technical language, moisture content of the oil is brought down to from 3 to 15 microns).

The pump which does the re-circulating job also serves to feed oil, through a pressure-regulating device, to the charging board, from which it is fed to the refrigerating units.

What we have described is, of course, a single dehydrating unit; in some applications, an auxiliary storage tank is added to allow the holding of oil which has been dehydrated and degasified against varying production needs. When such a tank is utilized, the oil in storage is maintained under high vacuum, and the storage tank is equipped with pump and pressure regulator to regulate the feeding of oil to the charging boards.

Continued on page 65

WHENEVER *tubing* IS INVOLVED



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It pays because you get a better job at lower cost. For these two low-temperature silver brazing alloys readily and reliably make liquid and gas tight joints—joints with all the strength and ductility of the parent metals to withstand vibration, shock and temperature changes—joints that offer strong resistance to most corrosive agents—in short, *joints equivalent to the solid tubing in all essential properties.* And the Handy & Harman patented alloys, SIL-FOS and EASY-FLO make production of these strong, lasting joints a surprisingly low-cost operation—on either ferrous or non-ferrous tubing.

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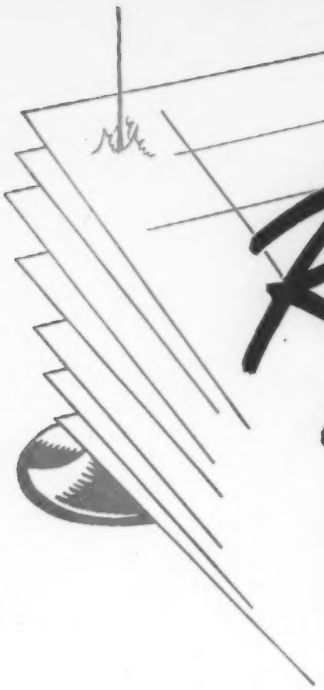

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DRIER THAN DRY . . .

Continued from page 63

In applications where a storage tank is not employed, extra dehydration and degasifying units are used to meet full-scale production requirements.

Second (and equally important) use of this type of equipment in the hermetically-sealed unit manufacturing process is in dehydrating the oil used in the vacuum pumps, whose job is to pull every possible trace of moisture out of the systems as a prelude to final testing, charging and shipment.

When these vacuum pumps are operating at peak efficiency, all of the moisture originally in the refrigerating units is collected in the seal oil contained in the pumps. Prior to the application of special dehydration equipment to this particular operation, vapor pressure of the moisture soon became great enough to cause the vacuum pumps to do a less and less efficient job of pulling water out of the units. To keep efficiency at required level, the oil in the pumps had to be changed every 8 to 24 hours, depending on the production load they were under.

Most of the pumps hold about 5 gallons of oil apiece, and with perhaps 100 of them in a plant this necessity of changing oil periodically became quite a maintenance problem in itself. Also, as the pumps picked up moisture during the production run, the assembly operation slowed down, because it required longer for

REFRIGERATION mechanics answering emergency service calls may park in restricted areas in New York City without penalty, according to official orders issued to New York traffic policemen.

In a recent case involving two employees of Manhattan Refrigeration Service Co. and defended by counsel for the Refrigeration & Air Conditioning Guild, Inc., $15 fines originally imposed for a violation of this nature were rescinded.

Before and during the war, refrigeration men on emergency calls were permitted to ignore some of the city's strict rules on parking. Recently, however, traffic squads have been cracking down on all such violations.

The Refrigeration Guild succeeded in convincing the police officials that emergency calls were as important now as they were before, so it looks like the "relaxed" ruling will stick.

THE PRACTICAL Refrigeration Engineering MANUAL . . . by Harold Smith

XI. Fur Storage

PART III

WE will use for our example a cooler 32′ long, 16′ wide, 14′ high, outside measurements insulated with 6″ insulation, giving us 8″ walls. The inside dimensions would be 30′ 8″ long x 14′ 8″ wide and 12′ 8″ high. Entrance door is located in center of 16′ end.

A 3′ aisle would be through the center of the cooler, with coat hanger rods running the length of the cooler, double-decked. The inside width is 14′ 8″, if we allow 3′ for the center aisle, providing 11′ 8″ storage space or 5′ 9″ storage space on either side of aisle.

Setting the hanger rods on 23″ centers, three rows of hanger rods 30′ long can be placed on each side of aisle, and with double-decking 12 rows of hanger rods may be installed in the cooler, giving a total of 12 x 30′ or 360′ of hanger rods. Figuring five coats to each foot of hanger rod, 1800 fur coats would be the maximum storage capacity of the cooler.

This example will be set up to use the shock-killing method.

LOAD FIGURES

Cooler Dimensions: 32′ x 16′ x 14′ = 2368 sq. ft.

6″ Insulation: "K" Factor = 0.05

Standard Storage Temperature: plus 35° F.

Shock-Killing Temperature: plus 15° F.

Maximum Outside Temperature: plus 90° F.

Evaporators Rated on 10° T.D.

Refrigerant Temp. (standard storage): plus 25° F.

Refrigerant Temp. (shock-killing): plus 5° F.

Evaporators and condensing units selected on the basis of continuous operation under shock-killing conditions:

Evaporators at 10° F. T.D., condensing units at plus 5° F. refrigerant suction temperature, and at full-load capacity, continuous operation.

HEAT LEAK
(90°F. Outside Temperature)

Plus 15°F. Room: 2368 x .05 x 75 (TD) = 8880 BTU/hr.

Plus 35°F. Room: 2368 x .05 x 55 (TD) = 6512 BTU/hr.

SERVICE LOAD

2 Men Working:	
550 BTU/hr. each	1100
8 200-W Lights:	
16-W x 3.5/hr.	5600
Infiltration:	
5696 inside cu. ft. x 0.4/hr.	2278
Total	8978
Plus 10% safety factor	897
Total Service Load	9875

TOTAL REFRIGERATION LOAD BTU

Plus 15°F. Room:	
Heat Leak	8880
Service Load	9875
Total Hourly Load—	
24-hour Oper'n.	18,755
18-hour Oper'n.	25,000
Plus 35°F. Room:	
Heat Leak	6512
Service Load	9875
Total Hourly Load—	
24-hour Oper'n.	16,387
18-hour Oper'n.	21,850

COOLING LOAD

From the above figures, we have a refrigeration load of 18,755 B.T.U.'s per hour on a plus 15°F. storage temperature, and a load of 21,850 B.T.U.'s per hour on a plus 35°F. storage temperature, if we assume an 18-hour operation during standard stor-

them to dry-out the units to the required point.

To overcome both of these problems, a unit developed by Buckeye Laboratories continuously removes moisture from the oil in the vacuum pumps. Using the same "spraying" principle described previously, the dehydration equipment pumps oil continuously from the vacuum pumps and throws it into a master (or main) oil storage tank. From this tank, heated to proper treated temperatures, the oil goes through a prefilter and then is pumped to the dehydration and degasification chamber.

The oil that is treated is then removed and passed through a second filter, to remove lint, dirt and other solids, after which it goes through a by-pass relief valve and a pressure relief valve assembly, designed so that all oil required for the vacuum pumps is fed directly to them, and the excess oil, if any, by-passed back to the storage tank. Make-up oil is fed directly to the storage tank.

So "drier than dry" is more than a catch-phrase when it is applied to today's hermetically-sealed refrigerating units. It's a fact.

age temperature periods.

If we select a condensing unit to operate continuously during the period when storage is held at plus 15°F., a condensing unit rated 18,000 to 19,000 B.T.U. at plus 5°F. suction gas temperature is indicated. Four unit coolers should be used. The unit coolers should have a combined capacity of 18,000 to 19,000 B.T.U. at 10°F. T.D.

The estimated equipment required would be a water-cooled condensing unit of from 2 to 3 H.P., and four forced-draft unit coolers, rated at 4800 B.T.U. each at 10°F. T.D., with a total capacity of 19,200 B.T.U., should be used.

COOLER LOCATIONS

The unit coolers should be placed two on each long wall of the cooler, staggered to improve circulation of air. Each unit should be controlled by a thermal expansion valve, and have hand valves on both liquid and suction lines at the unit. A solenoid valve should be placed in the main liquid line near the condensing unit and wired to a room thermostat which will control it.

The room thermostat should be a hand-dial adjustable type with a range from 0°F. to plus 50°F. with thermometer to register the room temperature. If a 2 H.P. unit is installed, a heat exchanger would be very desirable, and two suction lines of ⅞" O.D. copper pipe should be used. Two unit coolers should be attached to each such line and the liquid line should be ½" O.D. copper.

Use a large dehydrator on this installation connected to the liquid line between the solenoid valve and the liquid valve on the receiver.

There are, of course, other equipment combinations that can be worked out, such as the use of two condensing units—one used to operate the job under standard storage temperature, with the other unit usually operated with the first unit only when shock-killing temperatures are needed.

The tandem operation can be made entirely automatic through the use of two thermostats, each controlling a solenoid valve on the liquid line of each machine. The thermostat on the unit handling the standard temperature is set at 35°F., the other set at any temperature higher than 35° F.—say at 38 to 40°F.—during standard temperature operation.

This will keep the second unit from operation except during periods when the load is heavier, causing the temperature to go up. When the shock-killing temperature is required, set both thermostats at plus 15°F., and both machines will go into operation.

With this type installation, each condensing unit should be connected with its own group of unit coolers, and not tied-in together. The unit coolers connected to the second condensing unit are used only when the second unit is set in operation.

While an installation such as the one described involves a considerably increased cost for the initial investment, considerable savings will be realized in operating cost. The owner is also protected by having a second standby unit, which can be operated for emergencies should the regular unit break down. It can also be used for lowering the temperature for shock-killing, and to handle any excess load at any other time.

The refrigeration load for standard plus 35°F. storage temperatures is 16,387 B.T.U. per hour. On an 18-hour operation basis (21,850 B.T.U.) two condensing units with a capacity of 15,000 to 17,000 B.T.U. per hour at plus 15°F. suction gas temperatures would be required, based on the use of the second unit under maximum load conditions.

REFRIGERATION of foods for the German Army greatly assisted misspent Nazi efforts up to the time the Allies crossed the Rhine, American postwar investigation has revealed. Highly developed large cold storage plants were found in almost every major city in Germany, and a special type of small portable refrigerator was used with troops in forward areas.

Wartime advances were made in Germany in the refrigeration field in applications outside food preservation, particularly in the development of refrigeration equipment for U-boats, and for aircraft testing. Research on air conditioning for tanks had made progress, but had not been generally applied.

Information on these and other German developments is given in a publication of the U. S. Department of Commerce, Office of the Publication Board, Washington, D. C., and may be obtained by anyone interested at 50 cents per copy. The report, prepared by E. T. Simonson of the U. S. Engineers, is titled "German Refrigeration Industry," and is known as Report No. 205.

YORK CONDITIONING AIDS SECRET FUSE PRODUCTION

An air conditioning system, placed in operation only 84 days after the original purchase order was received, was installed during the war by York Corp. in the RCA Victor plant at Camden, N. J. where the Navy's super-secret proximity fuse was being manufactured. This system was designed to maintain a temperature of not more than 80°F. and a maximum of 50% relative humidity, for undue moisture could have made inoperative certain critical electrical components of the fuse. Refrigeration was provided by two 125-hp. York V/W compressors used in conjunction with economizers of the forced draft type.

DALLAS JOBBER MOVES TO LARGER LOCATION

The Electromotive Corp., refrigeration supplies wholesaler of Dallas, Tex., has moved to new and enlarged quarters at 1315 South Akard St., according to R. J. McBrien, manager. The company had formerly been located at 3209 Commerce St.

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ABOUT PEOPLE . . .

Continued from page 37

Fred A. Jackle, works manager of the Chase metal works and rolling mill plants, has been elected a vice president of Chase Brass & Copper Co. Mr. Jackle will act as a special consultant on the staff of Richard D. Ely, vice president in charge of production. **Walter L. Smith,** manager of the Cleveland plant of Chase Brass, succeeds Mr. Jackle.

●

J. C. "Chet" Battles has been appointed district manager of the mid-west territory for the line of commercial refrigeration cabinets distributed by United Refrigerator Manufacturing Co. Sales Division of St. Paul, Minn.

Mr. Battles formerly was sales and advertising manager of Midwest Manufacturing Co., Galesburg, Ill. Midwest's commercial refrigerator business was purchased last year by United.

●

Harrison J. Hedrick, who served for two years as a commodity specialist with the commercial refrigeration and air conditioning section of the Office of Price Administration, Washington, D. C., and formerly was assistant sales manager of the refrigeration division of Mills Industries, Inc., Chicago, has been appointed manager of that division.

Prior to his association with Mills Mr. Hedrick served ten years as president and general manager of Jewett Refrigerator Co., Buffalo, N. Y., and another 10 years with the commercial refrigeration division of R. Cooper, Jr., Chicago G-E distributor.

●

T. L. Lee has been appointed district manager for Agaloy Tubing Co. in the New Jersey, New York, and New England areas, with headquarters in New York City. Mr. Lee formerly was assistant manager of tube sales for Peter A. Frasse, Inc.

●

C. L. Bensen has been appointed manager of the refrigeration division of McQuay, Inc. For the past three years Mr. Bensen has been in charge of McQuay's aircraft division, and prior to that time was chief engineer for ten years. His new duties will be directed towards the establishment of the new jobber policy on refrigeration products.

●

George B. Hightower, recently returned from active duty with the Army, has been named manager of the southeastern district of General Electric Co.'s air conditioning department. He will make his headquarters in Atlanta, Ga. Mr. High-

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PRODUCTION PLANNING BOARD

Baker

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MANUFACTURERS OF REFRIGERATION AND AIR CONDITIONING EQUIPMENT SINCE 1905

tower first became associated with G-E in 1937 as air conditioning production engineer at the Bloomfield, N. J. plant.

•

Amos B. Miner has been appointed manager of industrial sales for National Gypsum Co.

•

After 40 months in the armed services, **William C. Mayfield** has rejoined the Kelvinator division of Nash-Kelvinator Corp. and has been appointed sales engineer in the contract sales department. Mr. Mayfield spent 36 months in the Pacific theater, serving most of this period as a warrant officer charged with administrative and liaison work. Prior to the war he was commercial district manager for Kelvinator in the midwest area.

•

E. A. Price has been appointed manager of Penn Electric Switch Co.'s Dallas, Tex. branch office. Formerly a sales engineer at Penn's home office in Goshen, Ind., Mr. Price was discharged from the Navy as a Lieutenant Commander last fall after having served four years, including a tour of duty in the Pacific.

•

Charles J. Lyall has been appointed sales manager of Drayer-Hanson, Los Angeles manufacturer of heat exchange equipment. Mr. Lyall formerly was associated with North American Aviation, Inc.

•

William B. Meek has been named assistant general manager of Westinghouse Electric Supply Co. He formerly was manager of the midwest district, with headquarters in St. Louis. His new duties will include overall supervision of sales and field contact with district offices.

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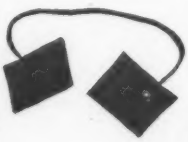

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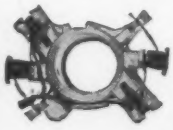

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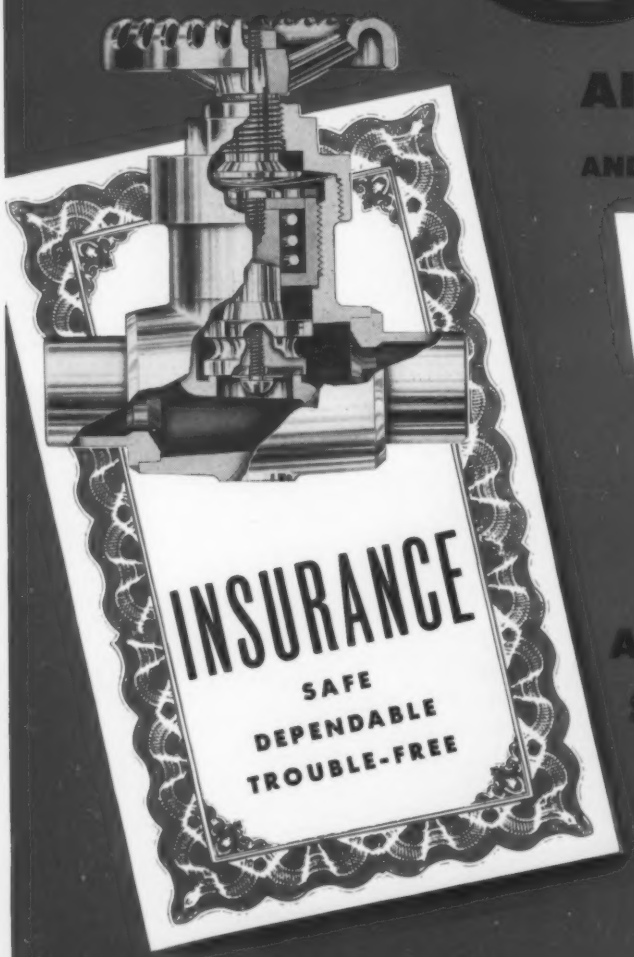

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CONTRACTORS

News • Activities • Plans

National Contractors Association Names Officers and Directors

Formal organization of the National Association of Refrigeration Contractors was completed at a meeting Jan. 21 and 22 in the Carter Hotel, Cleveland. Attending the two-day meeting were refrigeration contractors from 38 states, representing more than 1,000 firms and individuals in this important segment of the refrigeration industry.

Constitution and by-laws of the new association, formulated by a committee appointed at the meeting held last Dec. 10 in Chicago, and unanimously approved by delegates to the Cleveland meeting, place the management of the organization in the hands of a board of 12 directors, six representing geographical areas of the country and six chosen directors-at-large.

Regional directors elected at the meeting are: L. C. Anderson, River Forest, Ill.; W. E. Booth, Richmond, Va.; Nathan Edelstein, New York City; C. R. Faulkner, Longview, Tex.; M. M. Jamison, Dayton, Ohio; and J. F. Park, Los Angeles, Calif.

Directors-at-large are: W. L. Drake, Indianapolis; William G. Euth, Detroit; Warren W. Farr, Cleveland; A. M. Palen, Minneapolis; Lee Shirar, San Francisco; and Eldon S. Wright, Youngstown, Ohio.

National officers, chosen by the directors, include: Warren W. Farr, president; M. M. Jamison, first vice-president; J. F. Park, second vice-president; A. M. Palen, treasurer; E. S. Wright, recording secretary; and L. C. Anderson, sergeant-at-arms.

Both officers and directors will serve until the next meeting of N.A.R.C., which will be held in October of this year during the All-Industry Refrigeration and Air Conditioning Exhibition in Cleveland.

A life membership in the association was voted to W. Ray Kromer of Cleveland, whose efforts were largely instrumental in getting plans for the association under way, and who served as chairman of the group during the organizational period. Mr. Kromer explained that because his future association with the refrigeration industry would be national in scope, and involved his leaving the contracting phase of the business, it would not be possible for him to continue his association in an active capacity, but that he would continue to be interested in N.A.R.C. activities and would work closely with officers and directors in every way possible.

Three classes of membership were provided for, as follows:

Class A—Individual firms employing one or more refrigeration mechanics, and located in an area in which there is no local refrigeration contractors association affiliated with the N.A.R.C.

Class AA—Individual firms, located within the jurisdiction of an affiliated local contractors association, who wish to join N.A.R.C. on a member-at-large basis. However, to qualify for member-at-large classification, these firms must also be local association members.

Class B—This classification covers local contractor associations having ten or more members qualifying for membership under N.A.R.C. standards, and allows these groups to be represented in the national organization in relation to their local membership strength.

The right to vote in national association affairs was set on the basis of one vote for each five members of a local association enrolled as a Class B member, and one vote for each individual firm holding Class A or Class AA membership.

It was decided to incorporate the association and develop a special emblem for use by member firms and organizations. Letters and telegrams received and read during the meeting indicated an interest on the part of refrigeration firms far beyond the actual number in attendance at the affair. Responses to inquiries sent by mail to several thousand contractor firms in all parts of the country are still being received it was reported at the meeting, indicating that the new association fills a long-felt industry need.

With the permanent organization framework settled, an intensive campaign for new members is being launched, *and if the present nation-*

Here are officers and directors of the National Association of Refrigeration Contractors: Left to right, seated—L. C. Anderson, River Forest, Ill.; W. Ray Kromer, Cleveland; Warren W. Farr, Cleveland, president; M. M. Jamison, Dayton, Ohio, vice-president; E. S. Wright, Youngstown, Ohio, recording secretary; A. M. Palen, Minneapolis, treasurer. Standing, left to right—W. E. Booth, Richmond, Va.; W. L. Drake, Indianapolis; Nathan Edelstein, New York; C. R. Faulkner, Longview, Tex.; Lee Shirar, Los Angeles; W. G. Euth, Detroit.

wide interest is sustained, membership will be in excess of 1,000 contractors by the time of the next N.A.R.C. meeting in Cleveland next October. Selection of additional regional directors, and of an executive vice-president or secretary-manager, is now under consideration, and will be announced shortly.

In discussions during the two-day meeting, particular emphasis was placed on the type of contractors most desirable for membership in the association, and in the development of standards of business ethics and workmanship to keep the level of this phase of the industry at the highest plane. Cooperation with other associations in the industry also was pledged.

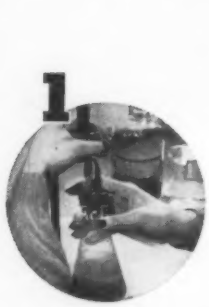
Particularly encouraging to those contractors whose efforts brought about formation of the new association were the large number of applications for Class AA memberships—those memberships covering individual firms already represented by local groups affiliated with N.A.R.C. In the opinion of the directors, this indicates an active interest in the group's activities by these individual firms, and will strengthen in a large measure the work of the national organization.

Committees are already functioning to meet the immediate problems of the refrigeration contractor. One of the important committees has as its task the investigation of war surplus materials and their possible effect on the business operations of N.A.R.C. members.

Detroit Contractors Plan Aid to Local Schools

A three-man committee has been named by the Refrigeration Contractors Association of Detroit to consult with public school officials on development of a sound curriculum for refrigeration courses. James E. Perry is chairman of the committee, with James Terry and T. H. Mabley as other members.

The organization also decided to join the National Association of Refrigeration Contractors. (William G. Euth, president of the Detroit association, was elected a director of N.A.R.C. at the Jan. 21 meeting in



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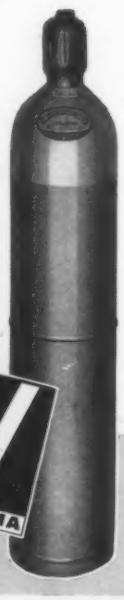

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Cleveland).

In its efforts to develop the best training program possible, the school committee will offer its cooperation in connection with the course now being offered at Cass Technical High School. Members believe that veterans will be helped in their apprenticeship training by enrollment in a trade school course, particularly one in which sufficient emphasis is placed on the practical phases of refrigeration.

Should the plan materialize, contractors might arrange for lectures by specialists in various products and applications to supplement the regular textbook-and-shop classes. Members have been asked to submit a list of requirements they feel refrigeration service men must possess to be considered properly trained. This would allow a standard training-on-the-job program to be standardized for all contractors.

Indiana Contractors Form State-Wide Association

At a recent meeting in Indianapolis, refrigeration contractors from 15 cities organized the Indiana Chapter of the National Association of Refrigeration Contractors, with William L. Drake, Indianapolis, as president.

Charter membership in the association comprises approximately 25 sales and service firms from 15 Indiana cities.

C. E. Crosby, Indianapolis, was named vice president of the organization, and G. A. Post, Indianapolis, secretary-treasurer. Directors, named for one-year terms, are E. R. Claus, Indianapolis; Dan Hoagland, Lafayette; Charles Crane, Jr., Terre Haute; G. L. Titus, Crawfordsville; Virgil W. Turner, Columbus, and Herbert Hale, Kokomo.

San Francisco Contractors Name Turner as President

A. K. "Scotty" Turner, of Oakland, Calif., has been elected president of the Refrigeration Contractors Association of Northern California for this year. Lee Shirar, San Francisco, is vice president; Ed. Tanner, San Francisco, treasurer; and Al Robinson, Oakland, recording secretary. Z. E. Jones continues as secretary-manager of the association.

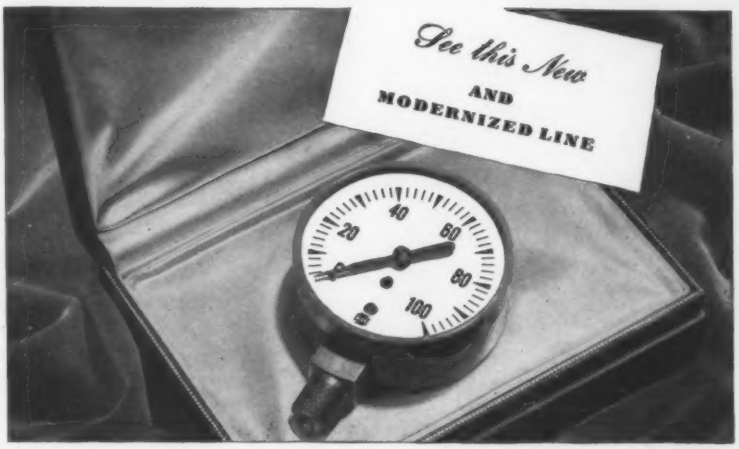
Directors, in addition to the officers, are J. B. Chapman, C. H. Merrill, E. L. Sattler and J. A. Scatena. New headquarters of the association are at 83 McAllister St., San Francisco.

Mohat Manages Frigidaire Service in Cleveland

C. O. Mohat has been named Frigidaire service manager for the Cleveland district, according to H. H. Kennedy, Cleveland branch manager.

Mr. Mohat formerly was service contact man in the Cleveland area. His 19 years of experience as refrigeration salesman, service man, and service manager for Frigidaire and various Frigidaire distributors began in Columbus, Ohio in 1926 and has continued unbroken to date.

George B. Eichmann has joined the staff of George C. Lewis, General Electric commercial refrigeration and air conditioning outlet in Philadelphia, according to Lee C. Leslie, sales manager.



The new U. S. Gauges are radically improved. Precise as always but now functionally styled to bring you new *appearance* . . . new *readability* . . . new *sturdier construction*.

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LOS ANGELES 23, CALIFORNIA
A new name, but the same high quality as always. No change in management.

Over the COUNTER

JIM: Have you read the notice I tacked up on the bulletin board this morning, Frank?

FRANK: *You mean the one about handling of refrigerant cylinders?*

JIM: Yes, that's the one I meant; I think it's one of the finest steps that's been taken in a long time to help regulate the handling of refrigerants and protect everybody using refrigerants against hazards in connection with such products.

FRANK: *I'm wondering why the industry has done nothing about this thing before now, Jim.*

JIM: The industry has always been regulated in the handling of refrigerants by rulings under the Interstate Commerce Commission. Unfortunately, the refrigeration industry has grown so rapidly that many persons handling refrigerants were not aware of the rulings actually on the books regulating the products. However this situation was brought to light last summer, when the Federal Trade Commission set up fair trade practice rules covering the low pressure refrigerants industry.

At the time this work was undertaken, all phases of the handling and sale of refrigerants were discussed and set up under a group of trade practice rules as a guidance for the entire industry. In setting up these fair trade practice rules, a lot of attention was given to the matter of vendors handling refrigerants, particularly in regard to refilling customers' cylinders.

FRANK: *I knew that the Interstate Commerce Commission had definite regulations covering the use of cylinders that carried testing approval, but I never paid too much attention to it, especially during the days when refrigerants were so hard to get and refrigeration service men brought in all kinds of cylinders for us to fill.*

JIM: Yes, that's one of the things that came as a result of the scarcity of refrigerants. In most cases, our customers were in such urgent need of refrigerants that we tried to help them out as much as we could, and we didn't give much thought to the container or anything else. What we were interested in was getting refrigerants into our customers' hands, so they could service refrigeration jobs that were shut down due to the shortage of refrigerants.

FRANK: *Just how does this inspection system actually work?*

JIM: The Interstate Commerce Commission has set up a method of testing refrigerant cylinders by hydrostatic pressure. Anyone following the proper inspection procedure can approve cylinders which are brought in to them and stand up satisfactorily under the prescribed test.

When a cylinder has passed the proper test, the tester has to stamp the date on which the test was made, together with letters identifying the testing source, and the cylinder then becomes valid for a period of five years, unless it is damaged during this period.

FRANK: *What happens at the end of the five-year period if the cylinder is in good condition?*

JIM: Regardless of how good the cylinder appears to be when the five years are up, the cylinder has

to be inspected again and approved for another five-year period. If the cylinder isn't inspected it is illegal for any vendor to refill the cylinder with refrigerants until it has been re-inspected and a new inspection date stencilled on the cylinder.

It is illegal for any vendor of refrigerants to charge refrigerants into a cylinder or container that hasn't been inspected or which carries no inspection date, particularly if the cylinder is of the home-made type which has appeared within the last several years.

FRANK: *Yes, a lot of service men have gone to junk yards or have rigged up home-made cylinders to carry refrigerants to enable them to get the amount of refrigerants they need for their work.*

JIM: It was unfortunate, of course, that the manufacture of new cylinders had to be suspended because of the war; that condition contributed largely to the great number of make-shift containers that have appeared on the market, and have been used during the war period.

FRANK: *Do these cylinders have to be inspected by an inspection bureau officially recognized by the Interstate Commerce Commission?*

JIM: No, the Interstate Commerce Commission requires re-testing of cylinders and the only approval required concerns the type of testing apparatus that is used, and the application of the re-testing date to the cylinder which is the testing agency's guarantee that the cylinder has been tested in accordance with these requirements.

FRANK: *What are we going to do with our customers, Jim, when they come in to us for refrigerants and bring a cylinder that doesn't have the proper approval?*

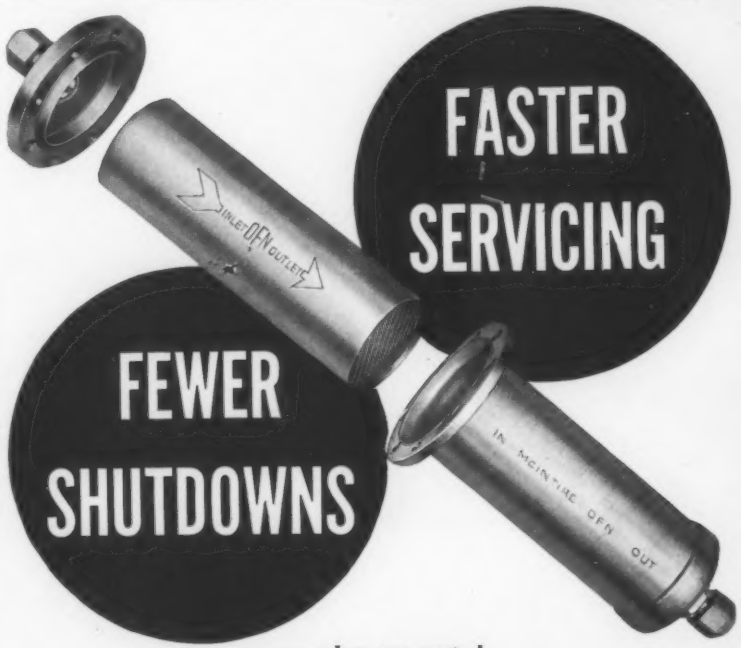
JIM: It's up to us, in the interest of good business and in compliance with the rules that have been set up by the Interstate Commerce Commission and Bureau of Explosives, to point out to them the danger of using cylinders that haven't been tested to determine whether they are structurally able to handle the pressure involved.

FRANK: *Suppose our customer objects to our policy of refusing to fill his uninspected cylinder, and takes it to some other supplier and buys his refrigerants there?*

JIM: One of the purposes of setting up fair trade practice rules is to get all vendors of refrigerants on a cooperative basis; we hope that any company selling refrigerants will refer to the requirements of these regulations and will refuse to place refrigerants in a container that's in any way questionable. This will eventually eliminate all such questionable containers from use—a step that will help to improve safety in the handling of refrigerants.

FRANK: *Where can our customers have these cylinders inspected if they don't carry an inspection date, or if the date is over five years old?*

JIM: I don't have the names of inspectors of cylinders yet, but a committee appointed by the refrigerant manufacturers are working on a list of inspection places right now. This list will include inspection points all over the country. As soon as the list is compiled it will be turned over to us and all other jobbers, so we can direct our customers to inspection places.



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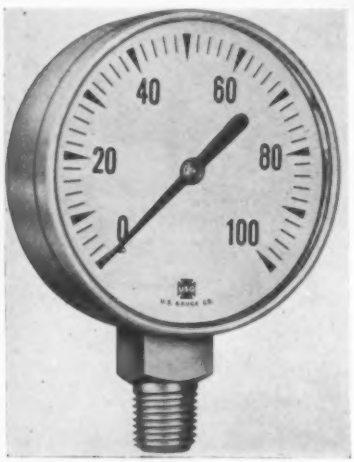
DEHYDRATORS • STRAINERS FILTERS • NEUTRALIZERS

For further information on any of these products, simply list the key number at the end of each item on the special post card enclosed with this issue.

New U. S. Gauges

The United States Gauge Division, American Machine and Metals, Inc. announces the introduction of a complete new line of streamlined gauges in a modernized, eye-appealing design. Engineers of the company, working with topmost designers, have



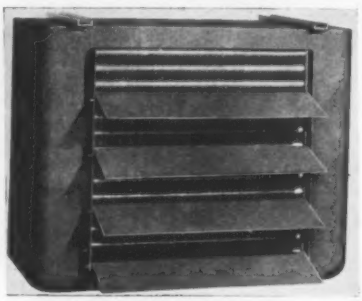
succeeded in developing gauges which are said to be superior in construction, appearance, and readability, retaining the precision for which U.S.G. products are known.

The streamlines of the neutral gray case are heightened by a striking ivory-toned dial with contrasting red and black graduations. U. S. G. claims longer life under adverse conditions for its smart new group of gauges.

Refer to item P-30 in queries.

Low Temperature Blowers

A new postwar line of overhead blowers for low temperature cooling is in production by The Rempe Co., Chicago. Unique feature of this line is provision for different velocities of air for various cooling jobs. The blowers are being built for use with all types of refrigerant. Coils are designed so that outlet velocities of refrigerants are well within safe limits.

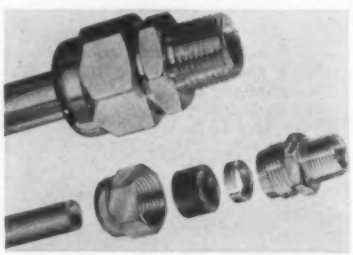


Louvers are individually adjustable to permit a controlled flow of air for uniform distribution. Blowers are housed in a steel bonderized case.

Refer to Item P-31 in queries.

Flexigrip Tubing Fitting

Flexigrip time-saving tubing fittings which eliminate end preparation or soldering of the tubing and yet are said to produce a stronger, leakproof and flexible joint have been an-



nounced by Gustin-Bacon Mfg. Co. of Kansas City, Missouri.

The Flexigrip fitting, made in standard sizes from 1/8" to 1 1/2" O.D., consists of four parts—the body, a gripping ring, synthetic rubber gasket and nut.

Eliminating flaring, swedging, or soldering, the tube end is said to add considerably to the strength of the joint as well as saving time and labor. Fittings are available in brass, aluminum or steel.

Refer to Item P-32 in queries.

Coldaire Home Freezers

A new 3-cu. ft. home freezer designed for use in the kitchen of the average urban family has been announced by Coldaire Corp., Chicago. Coldaire cabinets will be manufactured by Kellett Aircraft Corp., Philadelphia. The Coldaire Corp. has been established to merchandise the

equipment. Full-scale deliveries are scheduled for sometime in March or April, according to Charles W. Stillman, executive vice president of Coldaire and also director of frozen food activities for the Bob White Organization.

A table-top model, the new Coldaire food chest features a recessed base and a flush, counter-balanced lid. List price will be $195 f.o.b. Philadelphia.

Refer to Item P-33 in queries.

New Flaring Tool

A new tube flaring tool has recently been introduced by Penn Brass & Copper Co., Erie, Pa., and is designated as the Papco No. 400 tool.

List price of the tool is $7.85. Features claimed for it include: selection of size sizes, ranging from 3/16" to and including 5/8"; locking plier-like handles to permit easy operation and assure better leverage; long-wearing breach action to assure positive location and easy action.

Refer to Item P-34 in queries.

Carrier Farm Freezers

Production early in 1946 of two new upright farm freezers is scheduled by Carrier Corp.

First models will consist of a freezer with a capacity of 30 cu. ft.

and another of 15 cu. ft. Both are of upright design, with front-opening doors.

The 30-cu. ft. model contains a ⅓-H.P. hermetically sealed compressor, while the 15-cu. ft. design utilizes a ¼-H.P. unit of the same type. Shelves of both freezers serve as cooling plates, an arrangement which affords even temperature distribution throughout, and also provides direct-contact freezing on three of the four shelves in the boxes.

Refer to Item P-35 in queries.

"Blue Flash" Commercial Units

Three new models of Blue Flash refrigerator now are being offered by

Brunswick-Balke-Collender Co., Chicago.

Largest of these food and beverage refrigerators is the Model T, a three-compartment cabinet. One shallow and two deep tanks provide a total of 25¾ cu. ft. of storage space that can be divided between dry and wet refrigeration.

Model R, with one deep and one shallow tank, provides 15.4 cu. ft. Model N has two shallow tanks providing 9.6 cu. ft. of storage capacity.

All units feature a direct expansion refrigeration system with five-sided application of the cooling coils. Coils are soldered directly to tank walls to provide conductive cooling. Insulation is hermetically sealed to guard against damage from moisture or vermin.

Refer to Item P-36 in queries.

Electrode Holder

A complete new line of air cooled carbon electrode holders for manual welding has been announced by Tweco Products Co., Wichita, Kan. The line includes four sizes, 150, 200, 300 and 500 ampere models. Positive "hol-grip" design with ample length and ventilation are features.

Average types of welding jobs are done with either the 150 or the 200 ampere holders; the two largest models are designed for heavy welding and cutting jobs.

Refer to Item P-37 in queries.

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..DRAWN RIGHT
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Draught Beer Coolers!
DEALERS: Offer your customers an extra source of steady profits simply by including TEMPRITE Draught Beer Coolers in your selling specifications! Here's why . . .
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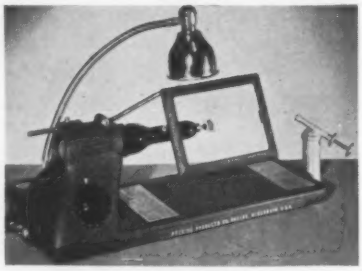
Vari-Speed Lathe

A small high-speed lathe for use on bench or table has been developed by Precise Products Co., Racine, Wis., to increase accuracy and speed in



grinding, finishing, and polishing small products and parts.

Powered by the manufacturer's Precise-35 electric grinder and handtool, the lathe unit has built-in speed control allowing a range of working speeds from zero to 40,000 RPM. The power unit can be detached and used separately as a handtool.

The lathe stand is cast of solid aluminum and finished in black crackle. Two large recessed compartments with oak covers provide storage space for rotary tools.

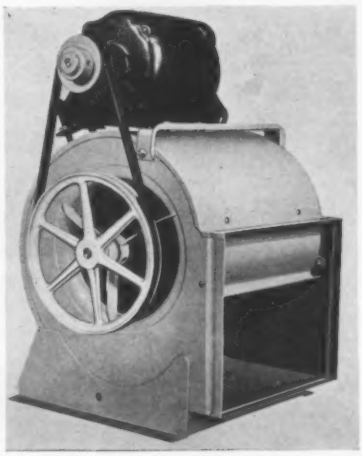
Refer to Item P-38 in queries.

New Blower Units

Lau Blower Co., Dayton, Ohio, has announced its initial postwar product development—the new Lau "A" Series blower assembly.

Features include a new three-point suspension method bearing bracket, the brackets being positively attached to the shroud and forming an integral part of the housing. The bracket, in its fixed position, is used for various angles of discharge. This bearing suspension maintains positive alignment of the blower wheel to the venturi, it is claimed.

A new method of mounting the motor is provided in a single attachable piece, which is convertible from rear to top position simply by using two sheet metal screws. The blower contains a center suspension-type wheel for low and high speed.



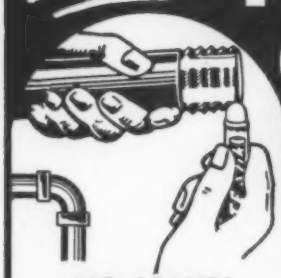
Overall size of the new blower unit is considerably smaller than former models of comparative capacity. It is offered in a complete range of sizes. *Refer to Item P-39 in queries.*

Electric Water Coolers

Interstate Aircraft and Engineering Corp., El Segundo, Calif., has announced the addition to its roster of postwar products of a complete line of electric water coolers and water softeners. On Oct. 1, Interstate purchased the entire assets and business of The Revelation Co. of Los Angeles, manufacturers of electric water coolers and softeners.

Several exclusive designs are incorporated in the machines, such as the pre-cooler, which is so constructed that outgoing waste water passes over the incoming supply line, thereby reducing the load on the refrigera-

NOW-PIPE JOINT COMPOUND in Stick Form



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NO WASTE

ASK YOUR DEALER OR WRITE US

Note these FEATURES
★ Withstands Freon, brine, gas, sulphur dioxide, acid, gasoline, oil, butane, propane, air, water, steam.
★ Lubricates and completely seals pipe joint threads, nuts, bolts, gaskets, turnbuckles, etc.
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616 N. WESTERN AVE. CHICAGO 12, ILLINOIS

Copr. 1943 Lake Chemical Co.

tion unit. Another feature is the "Lo-Pressure" tank used on all one-bubbler models, to eliminate flood danger. Cooling units include a cooling tank of heavy steel, galvanized inside and out, and pressure tested at 250

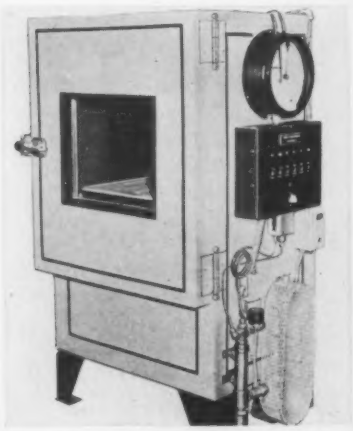
lbs. Tank is baffled to insure cooling of entire tank and to prevent formation of ice on refrigerant line. Cooler is constructed as a separate unit with heavy Fiberglas insulation, hydrolene sealed and is easily accessible and removable for servicing.

Compressor units are the reciprocating type with forced feed lubrication. Condensers are oversized finned type. Receiver tanks are deep-drawn and hydrogen welded. All refrigeration units are approved by Underwriters Laboratories.

Refer to Item P-40 in queries.

Test Cabinet

A new insulated variable temperature and humidity chamber for the simulation and control of atmos-



pheric conditions has been announced by Tenney Engineering, Inc., Newark, N. J.

Cabinets are designed to provide accurate simulation and control of any desired temperature, humidity and air circulation condition in laboratory or production testing operations. Batches or parts can be tested under standard or variable conditions. Temperature, humidity and air circulation can be controlled to close pre-selected limits.

Dry bulb temperature of the air can be set from room temperature to any desired point. When unit is operating, this temperature does not vary in any part of cabinet by over 1°C. plus or minus, it is claimed. Relative humidity can be controlled up to 90%.

Refer to Item P-41 in queries.

Renewable Switch

A new renewable switch measuring only a little over an inch long and three-quarters of an inch high and designed for use either with motors or resistive loads has been announced by Robert Hetherington & Son, Inc. Underwriters approved at 15 amperes and 110 volts a.c., it can be used in a single hole mount.

Refer to Item P-42 in queries.

MODERN
REFRIGERATOR
HARDWARE

Manufactured by
NATIONAL LOCK COMPANY
Rockford, Illinois

INDEX OF ADVERTISERS

THE REFRIGERATION INDUSTRY

MARCH, 1946

Admiral Corp. 47
Aerovox Corp. 54
Alco Valve Co. 10
American Injector Co. 80
Ansul Chemical Co. 14
Theo. H. Audel Co. 78
Automatic Products Co. .....Cover 3

Baker Ice Machine Co., Inc. 68
Albert H. Bromann, Jr. 5
Brunner Mfg. Co. 19
Bush Mfg. Co. 7

Chicago Seal Co. 50
Copeland Refrigeration Corp. 22
Curtis Refrigerating Machine Co. 15

Davison Chemical Co. 61
Dayton Rubber Mfg. Co. 16
Detroit Lubricator Co. 20
Dole Refrigerating Co. 52
Drayer & Hanson, Inc. 4

Electrimatic Corp. 50

General Vending Machine Corp. 63
Grand Rapids Brass Co. 2
Grunow Authorized Service, Inc. 51

Handy & Harman 63
Henry Valve Co. 14
Highside Chemicals Co. 60

Imperial Brass Mfg. Co. 26

Jarrow Products Co. 59

Kerotest Mfg. Co. 70
Kinetic Chemicals 11
Kramer Trenton Co. 51

Lake Chemical Co. 78
Larkin Coils 61
Lynch Mfg. Co. 1

Marlo Coil Co. 21
McQuay, Inc. 36
McIntire Connector Co. 75
Mills Industries, Inc. 25
Mueller Brass Co. 12, 23

Nash-Kelvinator Corp. (Kelvinator Div.) .. 55
National Gypsum Co. 49
National Lock Co. 79
Northern Indiana Brass Co. 62

Peerless of America, Inc. 9
Perfecold, Inc. 24
Penn Electric Switch Co. 28
Pittsberg Chemical Co. 74

Ranco, Inc. 57
Revere Copper & Brass, Inc. 67
Rotary Seal Co. 8

Skasol Corp. 59
Sporlan Valve Co. 6
Stangard-Dickerson Corp. 52
Superior Valve & Fitting Co. 59

Temperature Control Devices 60
Temprite Products Corp. 77
Texas Co., The 64

U. S. Gauge Co. 73

Virginia Smelting Co. 72

Wagner Electric Corp. 18, 69
Weatherhead Co., The .....Cover 2
Western Thermal Equipment Co. 72
White-Rodgers Electric Co. 13

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COLD SPOT PUMP PARTS, rebuild them like new. We can furnish you with new blade valves, milled and finished to fit your Cold Spots. $1.50 per set of 4. Send one sample in letter of each pump. Scored cylinder housings honed and guaranteed like new, $4.50 each. PROMPT SERVICE.

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FOR SALE 500 used ice cream cabinets, direct expansion. $10 per hole, Brine $5 per hole "as is." All sizes from 2 to 10 holes. Remanufactured AC condensing units ¼ H P up to 1½. Write for particulars. EDISON COOLING CORP., 310 East 149th St., New York 51, N. Y.

FOR SALE—12 - 16 and 24 cubic ft. freezer cabinets. Write for list and prices. Rathbun Refrigeration Company, 1675 Lake Drive, Grand Rapids 6, Michigan.

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Old line refrigeration manufacturer has opening for engineer capable of taking charge of complete development and design of new products, models in manufacture, set up complete systems. Between 35 & 45 years of age, to take permanent position on West Coast. State full details of previous experience and salaries. Please send reply to Box No. 3846, Refrigeration Industry.

NEW FREEZER OUTLET

Deep Freeze & Equipment Co., Fayetteville, N. C., has been granted a charter to deal in farm and home freezers. The firm has been incorporated with authorized capital stock of $100,000 by C. Parker Poole, Mildred B. Poole, Carl A. Barrington, and Patricia P. Barrington, all of Fayetteville.

RESEARCH at hospitals of the University of Minnesota has revealed that patients frequently prefer refrigeration anesthesia to other forms, according to Dr. Clarence Dennis, associate professor of surgery at the university.

"Wide interest has been expressed in the possibilities of amputation of extremities where the only anesthesia used was refrigeration," Dr. Dennis said.

"Patients who have had one extremity removed in this manner and the other by means of another method of anesthesia all express their preference for refrigeration."

NEW CHARLOTTE DEALER

Benson's Radio & Refrigeration Service has been established in Charlotte, N. C. by W. E. Benson to handle sales of Belmont radios, Trane commercial air conditioning equipment, and other products. Complete service facilities for all electrical appliances also will be available, according to Mr. Benson.

RICE REOPENS SHOP

In Dayton, Ohio, Harold Rice has announced the reopening of his Good Housekeeping Shop, electrical appliance dealership, which has been closed for more than two years.

AMINCO
OIL SEPARATORS

Aminco Oil Separators protect compressors by maintaining correct oil level in crankcase and by excluding oil from refrigerant stream they enable coils, condensers, valves and dehydrators to function most efficiently.

These oil separators are made for jobs from ⅛ H.P. to 120 tons and are used everywhere, ashore or afloat, where efficient refrigeration is desired.

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Van D. Clothier, 1915 E. 16th, Los Angeles
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W. H. Cody, Santa Fe Bldg., Dallas
Export: Borg-Warner, 310 So. Mich., Chicago

SATISFACTION FOR CUSTOMERS AND SERVICEMEN—WITH A-P VALVES...

Herbert Frame
Service Manager
Public Service Co.
Baltimore, Maryland

Herbert Frame, Service Manager of the Public Service Co., of Baltimore, shown above, is checking the temperature of an ice-cream cabinet on test. A standard "A-P" Thermostatic Expansion Valve Model 207 is used on this job as standard equipment.

Writes Mr. Frame: "A-P Valves for high and low temperature work have been used by our company since 1936. Customers' satisfaction as well as servicemen's satisfaction has been accomplished by the use of A.P. Valves during this period."

There is more profit for servicemen and customers alike — with standard A-P Thermostatic Expansion Valves that can be used on low temperature, commercial temperature, and air conditioning work without adjustment.

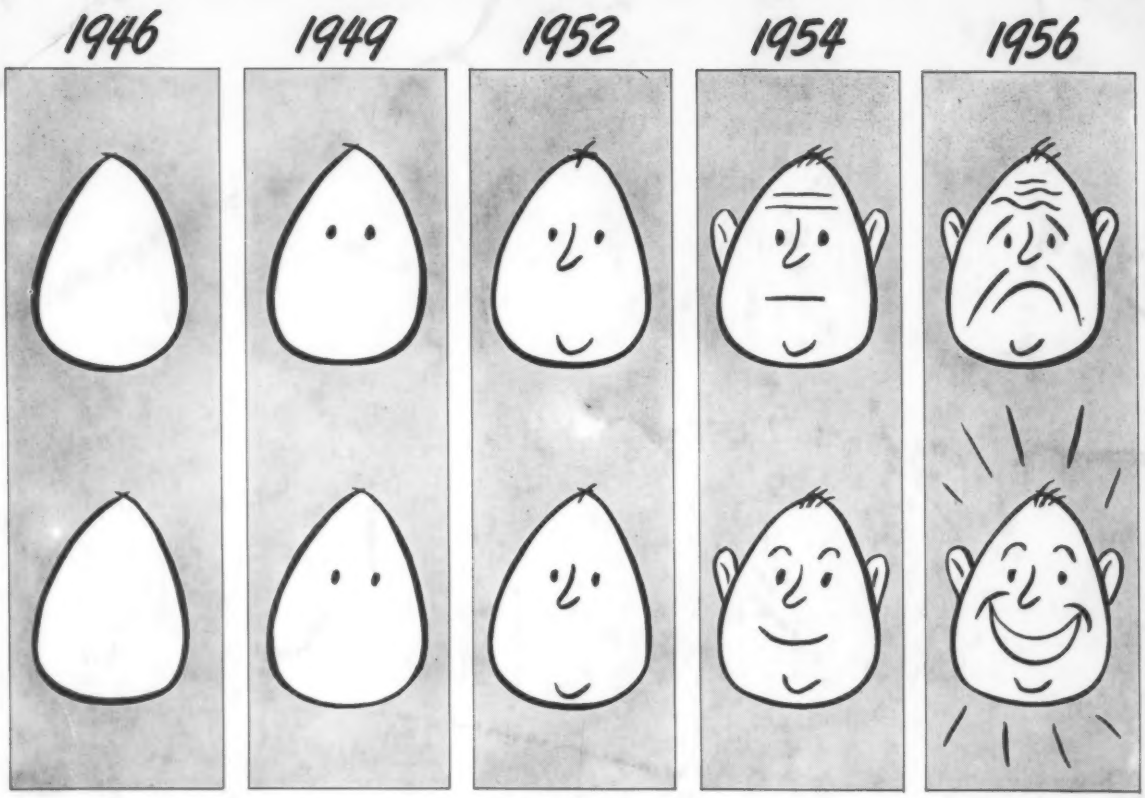
You have less stock to carry, and your customers get better service—the kind that keeps them your customers year in and year out.

Bulletins covering all "A-P" Refrigeration Controls will be sent you upon request.

AUTOMATIC PRODUCTS COMPANY
2486 N. 32nd Street, Milwaukee 10, Wis.
Export Dept. 13 E. 40th St., New York 16, N. Y.

DEPENDABLE *Refrigerant Valves*

Stocked and Sold by Good Refrigeration Jobbers Everywhere • Recommended and Installed by Leading Refrigeration Service Engineers



Two ways your face can grow in the next few years

USUALLY, our faces show what's happening to us. For instance, suppose financial matters are constantly on your mind.

Suppose you know that there's practically no cash reserve between you and trouble.

It would be surprising if your face didn't show it.

But suppose that, on the contrary, you've managed to get yourself on a pretty sound financial basis.

Suppose that you're putting aside part of everything you earn . . . that those dollars you save are busy earning *extra* dollars for you . . . that you have a nest egg and an emergency fund.

Naturally, your face will show *that*, too.

There's a simple and pretty accurate way to tell which way your face is going to go in the next few years:

If you are buying, regularly, and holding as many U. S. Savings Bonds as you can, you needn't worry.

Your face will be among the ones that wear a smile.

Buy all the Bonds you can... keep all the Bonds you buy

THE REFRIGERATION INDUSTRY

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